

Inland Seas



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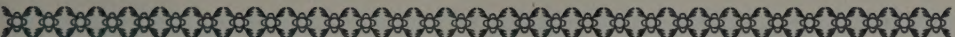
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The Story of the D & C

By FRANCIS DUNCAN

PART I



IN 1951 THE CITY OF DETROIT commemorated the two hundred and fiftieth anniversary of the year in which Antoine Lemothe Cadillac founded the colony of Fort Pontchartrain du Detroit. The occasion was marked by the nation, which heard the President of the United States speak on foreign affairs from the City Hall. It was an apt setting for his message, for Detroit has become symbolic of part of America. The automobile, the famous product of the city, has profoundly changed the habits and thinking of the last two generations of the country and has, in its way, come to stand for American industrial power.

The strategic location of Detroit was recognized by its stout-hearted founder. The waters of the three largest lakes, Michigan, Superior, and Huron, flow south through the narrow reaches of the St. Clair River at the southern end of Lake Huron, then into the wide and shallow expanse of Lake St. Clair, before the shores funnel together again to form the Detroit River, which in turn, empties into Lake Erie. As every schoolboy knows, the glacier-built Great Lakes form the largest body of fresh water in the world. Commerce is heavy upon them when they are ice-free. Ore and grain are shipped from the Superior region by freighter to the large cities that line the southern shores of Lake Michigan and Lake Erie. The long, narrow and heavily laden ships bound for Toledo, Cleveland, Ashtabula, Lorain, Erie and Buffalo must thread their way by Detroit. Night and day, while navigation is open, the procession of ships continues. On a hot summer night, when the rush-hour tide of traffic has ebbed, the hoarse whistles of the long ships passing on the river echo loudly among the darkened skyscrapers.

In a somewhat self-conscious way, Detroit is taking steps to beautify itself. The City Planning Commission is engaged in pulling down the

old warehouses, the tawdry burlesque theaters, the disreputable novelty shops and the shaded saloons that were the trade mark of the streets along the water front. In their place is planned a city park, with wide lawns and a pool, surrounded by marble civic buildings.

As Detroit was preparing for its anniversary, Mr. George J. Kolowich, President of the Detroit & Cleveland Navigation Company, announced that his firm was suspending its maritime activities. His statement had historical significance. For nearly half the existence of Detroit, ships of the D & C had docked along the river. The city, in planning its improvements, took over the wharfage of the navigation company. Tugs pulled away two of the ships, the *Greater Detroit* and the *Eastern States*, from the newly acquired property. One observer reminisced about the *Greater Detroit*, "I saw her then in her day of triumph. I guess that was about 1924 or '25. I felt I had to come down and see her today, hauled off by the tail like a dead cat."¹

The conflict between the company and the civic officials over the docking area emphasized the change that had taken place in Detroit. For the greater part of its two hundred and fifty years, the river and the lakes had been an important means of transportation for the inhabitants of the city. With the arrival of the automobile, the passenger steamer faded into insignificance. The D & C was the last of the large passenger lines on the Great Lakes. With its passing, the peace of the water front was unbroken save for a few small excursion steamers, a cruise vessel or two, and the freighters bound up and down the river.

When the D & C was founded, the docks along the river were crowded with shipping which carried passengers and freight to nearly every town and city on the lakes. While cold weather lasted, the ships lay at their wharves, waiting for spring and open water. Even before a landsman could feel the touch of spring, the water front hummed with activity. Swarms of men clambered over the idle ships while wind carried the clean scent of newly-cut wood as cabins were repaired or rebuilt. Painters, caulkers, carpenters and riggers were busily rushing their jobs to completion. Wages were discussed and debated as captains began to sign on crews. Schooners and scows shook their sails free as smoke from the

1. *Detroit Free Press*, June 13, 1951.

steamers darkened the sky over the river. Ships made trial runs down the river to Lake Erie or upstream into Lake St. Clair, and reported the ice conditions on their return. Soon the efforts of vessels to enter the Lake Erie ports of Toledo, Sandusky, Cleveland and Buffalo were successful; and by the latter part of April navigation to the south was open. Clear shipping lanes on Lake Huron and Lake Michigan came later, for it took longer for the wind and rising temperatures to weaken the grasp of ice on the Straits of Mackinac. Once the ice was gone, the river was filled with commerce, and ferries from Detroit to Windsor threaded their way warily through the side-wheelers, propellers, and small but powerful tugs towing lines of schooners, barges and scows.

The midpoint of the nineteenth century was a time of prosperity for Detroit. With work and money plentiful, the city grew rapidly. In 1850, it had a population of 21,019, and while the figure might seem small by modern standards, the decade that had just ended witnessed an increase in population of 130.9 per cent over what it had been in 1840. The thriving condition of the city was a reflection of that enjoyed by the Great Lakes region. Sixteen first class side-wheelers and twenty propellers operated between Detroit and Chicago. Immigrants, hungry for western land, swarmed aboard the ships in Buffalo. In a few instances, fifteen hundred passengers were jammed aboard a single steamer. Those who were wealthy could find accommodations in large cabins, a cuisine equal to the best in American hotels, and a band to furnish music during the four day voyage between Buffalo and Chicago. In 1850 five propellers skirted the Canadian shore between Detroit and Buffalo; three steamers operated from Detroit to Cleveland, while one ran to Sandusky and two went to Toledo. North of Detroit routes stretched to Chatham, Port Huron, Saginaw, to Sault Ste. Marie and down to Chicago.²

Lake travel was comparatively safe and inexpensive, yet as a means of transportation, it suffered from the interruption of winter gales and ice. Many hoped to gain both quicker travel and profits from the economic development of the interior by the railroad. The Michigan Central Railroad was chartered in 1832 for the purpose of connecting

2. James Cooke Mills, *Our Inland Seas, Their Shipping and Commerce for Three Centuries*, Chicago, A. C. McClurg, 1910, p. 145.

Detroit and Chicago. Five years later the railroad was taken over by the state government when Michigan entered the Union. The venture into government ownership ended in 1846 when the road was purchased by the Michigan Railroad Company with the stipulation that the tracks were to be continued from Kalamazoo to Chicago. In order to reach its passengers from the East, the Michigan Central inaugurated a regular steamship service on Lake Erie. In 1847, a line of steamers operated along the northern shores of Lake Erie from Detroit to Buffalo in connection with the railroad.³ A year or two later, the service expanded to include a route between Detroit and Cleveland.⁴ The steamers were an important part of the way between New York and St. Louis in 1851. The journey began with an overnight boat up the Hudson River to Albany, where a transfer was made to a train that took a day to cross the state to Buffalo. Here the traveller embarked on the Michigan Central steamer for Detroit. From Detroit the train carried him to New Buffalo, Michigan, where the weary passenger transferred to a steamer which carried him across the foot of Lake Michigan to Chicago. It was a twenty-two hour journey on the Illinois and Michigan Canal "packet boat" to LaSalle and an additional thirty-eight or fifty hour trip down the Illinois River to St. Louis.

At the end of April, 1850, the *Detroit Daily Free Press* announced that the steamers *Baltimore* and *Southerner* were to form a line between Detroit and Cleveland.⁵ The service was welcomed in Cleveland, where the *Daily True Democrat* commented, "These are good boats, well manned, and run in connection with the Michigan Central Railroad."⁶ The two steamers seem to have been nearly identical. While the *Baltimore* was built at Monroe, Michigan, and the *Southerner* at Trenton,

3. Advertisement, *Detroit Daily Advertiser*, July 2, 1847.

4. Arthur Pound, *Detroit Dynamic City*, New York, Appleton Century, 1940, p. 175. Pound states that the railroad inaugurated the Buffalo-Detroit service in 1849 and the Cleveland line a year later. I am indebted to Dr. Joe L. Norris, Department of History, Wayne University, Detroit, for calling my attention to the advertisement in the *Detroit Daily Advertiser*, July 2, 1847, which indicates that the connection between the Michigan Central by steamship to Buffalo was in existence by that year. Possibly Pound refers to direct service between the two cities.

5. *Detroit Daily Free Press*, April 29, 1850.

6. *Daily True Democrat*, Cleveland, May 8, 1850.

Michigan, both were built in 1847. The two vessels measured 176 feet in length, 27 feet in beam, and drew 11 feet, 6 inches of water. Even for their day they were not large, for the *Mayflower*, the largest lake steamer built up to 1849, was 282 feet long with a 35-foot beam and a draft of 12 feet.

The years from 1850 until the incorporation of the Detroit & Cleveland Steam Navigation Company in 1868 were filled with a bewildering number of steamers operating on the route. The *Baltimore* and the *Southerner* were replaced in 1852 by the *Forest City* and the *Cleveland*, both of which were built during the winter of 1851 and 1852.⁷ As the *Cleveland* lay unfinished when navigation opened, the *St. Louis* acted as a substitute for part of the year.⁸ The *Forest City* was withdrawn from the service in 1853 and replaced by the new steamer *May Queen*, which had been built at an estimated cost of \$60,000. This steamer and the *Cleveland*⁹ worked the route until 1855, when the latter vessel was superseded by the *Ocean*, which had been built at Newport, Michigan, in the winter of 1849 and 1850, and had spent most of her career in the Detroit-Buffalo traffic.

An experiment with morning and evening service was inaugurated in 1857 by adding the new steamer *City of Cleveland* to the *Ocean* and

7. *Detroit Free Press*, March 10, 1931. This source states that the *St. Louis* and the *Sam Ward* operated in 1852 as well as the *Forest City* and *Cleveland*. For the changes in the line, see: *Historic Michigan, Land of the Great Lakes*, ed. George N. Fuller (3 vols., Dayton, Ohio, National Historical Association, 1924), vol. 3, p. 156. This vol. ed. by George B. Catlin. *Daily True Democrat*, Cleveland, January 5, 1852, states that the *Forest City* and the *Cleveland* would be ready for spring navigation. *Detroit Daily Free Press*, March 15, 1852, reports that the *Ocean Caspian*, and *St. Louis* will be replaced "by the new and elegant boats, the *Cleveland* and *Forest City*." These two ships were 185 feet long, 27 feet in beam, with a draft of 12 feet 6 inches.

8. Advertisement, *Detroit Daily Free Press*, March 16, 1852.

9. Catlin and Mills call the steamer *City of Cleveland*. See: Catlin, p. 156; Mills, p. 281. The confusion here is undoubtedly due to vague and unsatisfactory sources, and the fact that steamers named the *Cleveland* and *City of Cleveland* did operate on this run. The *City of Cleveland*, however, made her maiden voyage in May, 1857. See: *Detroit Daily Free Press*, May 19, 1857.

May Queen in 1857.¹⁰ Lake commerce, however, had felt the pressure of railroad competition as early as 1852, when the Michigan Central completed its tracks to Chicago, and a rival system of railroads reached across Ohio and Indiana to the same city. Two years later the Great Western finished its route along the Canadian shore of Lake Erie from Buffalo to Windsor. Since lake shipping had to close down during the winter months, the impact of the railroads was particularly great. The panic of 1857 caused many owners to discard the larger vessels in favor of smaller ones which could be operated at a lower cost. Perhaps the depression accounts for the fact that in 1858 the *Ocean* and the *May Queen* continued without the third vessel.¹¹

These two vessels operated between Detroit and Cleveland in conjunction with the Michigan Central until the end of 1861. In the wooden steamers of that day, the hull tended to deteriorate more rapidly than the engines, consequently, when the *Ocean* was withdrawn from the route in 1861, her engines were removed and placed in the hull of the *Morning Star* which lay building down the Detroit River at Trenton. As the *Morning Star* was still unfinished as the spring of 1862 arrived, the *Cleveland* re-entered the run until the new steamer, carrying a part of the 20th Michigan Regiment to the battleground, made her trial run on August 31, 1862. Apparently the *Morning Star* and the *May Queen* were paired between the two cities until 1864, when the latter was replaced by the *City of Cleveland*.

The line appears to have prospered in the post Civil War years, for in January, 1866, Keith and Carter, the Detroit agents of the route, felt that the *City of Cleveland* was too small to accommodate the business, and announced plans to build a new ship to enter the line in 1867. That winter the *R. N. Rice* was built at the shipyard of Campbell and Owen

10. *Detroit Free Press*, May 19, 1857. J. B. Mansfield, *History of the Great Lakes*, Chicago, Beers, 1899, vol. 1, p. 463, gives 1856 as the year in which the *City of Cleveland* was added to the route, although in another place he refers to the vessel as having been built in 1857. See: Mansfield, vol. 1, p. 806. Catlin, p. 157 also gives 1856 as the date the ship was added.

11. *Cleveland Leader*, April 24, 1858, cited in *Annals of Cleveland*, vol. 41, p. 484. This source mentions only the *Ocean* and *May Queen* when it speaks of regular service being resumed for 1858. Also: Catlin, p. 157.

in Detroit.¹² Stripped of its engines and boilers, the hull of the *City of Cleveland* was sold at auction.¹³ It was the *R. N. Rice* and the *Morning Star* that shuttled between the two Lake Erie ports when the Detroit & Cleveland Navigation Company was formally incorporated. They were the first of the company's steamers, and both were to come to unfortunate ends.

The confusing and monotonous catalogue of vessels that appeared and reappeared in the eighteen years which spanned the period from the beginning of the line to the incorporation of the company, was the result of informal business organization and the practice of multiple ownership of the steamers. From the information available, only the *Southerner* seems to have belonged to a single individual; the ownership of the other vessels was divided into shares held in varying amounts by different persons.¹⁴ In the absence of reliable data it is difficult to learn how the line was managed. From its inception, the steamers ran in connection with the Michigan Central Railroad. At their docks in the crowded Cuyahoga River at Cleveland, the ships met the trains of both the Pittsburgh and Cleveland, and Cincinnati, Columbus and Cleveland Railroads. Passengers were able to buy tickets with steamer passage included to anywhere on the line.¹⁵ While the exact nature is not clear of the connection between the Michigan Central and the steamers occasionally known as the Detroit and Cleveland Steamboat Company, the relationship must have been fairly close. For example, when the captain of the *Southerner*, Lawson A. Pierce, retired from the lakes and went ashore in Cleveland, he became the general agent of the Michigan Central in that city. Those who followed lake news in 1857 noticed that the *City of Cleveland*, then building in Buffalo, was reported as chartered to the Michigan Central,¹⁶

12. *Detroit Free Press*, December 2, 1866.

13. Advertisement, *Detroit Free Press*, December 10, 1866, April 3, 1867.

14. Appendix A. (See continuation of this study in future issues of INLAND SEAS.)

15. Advertisement, *Detroit Free Press*, April 7, 1851.

16. *Detroit Daily Free Press*, March 22, May 18, 1857. The first reference uses the word "purchase," the second, "chartered." The latter term seems to be more accurate, because when the Detroit & Cleveland Steam Navigation Company was formed, the boilers and engines of this ship were listed as part of the assets. See: Signed statement of original stockholders listing assets, dated May 31, 1868, found in an envelope entitled, *Reports and Papers Connected with Annual Meeting 1868 & 1869. D & C Papers*. Hereafter the citation *D & C Papers* refers to records

and it may not be without significance that the R. N. Rice was named for the general manager of the Michigan Central. Newspaper advertisements do not clarify the problem, for in 1852 the Detroit and Cleveland steamers were advertised in the *Detroit Daily Free Press* under a column leader entitled "Ward's Steamers," while in 1857 the same paper published a schedule for the ships under the heading, "Michigan Central Line." Perhaps the most conclusive evidence of the informal ownership is revealed in the license records of the United States Customs Office at Detroit which contain no hint that the vessels were actually owned by the railroad. A search through the records of the Bureau of Marine Inspection and Navigation in the National Archives in Washington, D. C., leads to the same conclusion.¹⁷ Probably these vessels were managed by one individual who operated the steamers for their owners under contract with the railroad. This, perhaps, would explain the statement of the *Cleveland Leader* of February 10, 1860, which reported that Captain Eber Ward, a large ship owner of Detroit, was making an effort to obtain possession of the steamboat line between Detroit and Cleveland.¹⁸

still in possession of the company. References to *D & C Correspondence* usually indicates material found in the correspondence files, some of which have been donated to the Burton Historical Collection, Detroit Public Library, Detroit, Michigan. However, some of the correspondence of the company was destroyed preparatory to the razing of the old warehouse at the foot of Wayne Street, Detroit, Michigan. The author would like to state that through the courtesy of Mr. Fred Kolowich, of the Detroit & Cleveland Navigation Company, all correspondence and records were made available to him.

17. Letter of the General Services Administration, National Archives, Washington, D. C., to F. Duncan, October 19, 1950. Catlin, p. 157, states that the line was a subsidiary of the Michigan Central Railroad.
18. *Cleveland Leader*, February 10, 1860. The same source describes Ward as the most successful steamboat builder and owner between "Buffalo and Fond du lac." See: *Daily True Democrat*, Cleveland, October 24, 1851. Dr. Joe L. Norris, Department of History, Wayne University, Detroit, has pointed out that the Fond du Lac mentioned was probably the town that still exists as a suburb of Duluth, Minnesota. Captain Eber Brock Ward was born December 25, 1811, at New Hambrough, Upper Canada. After fishing, farming and trapping, he moved to St. Clair County, Michigan, in 1834. Two years later he purchased a quarter interest in a schooner, and in 1840, built a steamer for river service in partnership with his uncle. Nine years afterwards, his ships connected Chicago with the Michigan Central at New Buffalo, Michigan. A wealthy man, with prominent descendants, he died January 2, 1875. The records of the United States Customs Office at Detroit for 1854 show him to have been the managing owner of nine vessels.

Except for the depression of 1857, the Detroit and Cleveland line seems to have prospered throughout the years from 1850 to 1868. Although there are no passenger or freight statistics to measure the growth of the business, the increasing size of the steamers may serve as an index to the growth of the traffic carried by the ships. The *Baltimore* measured only 513.3 tons, while the *R. N. Rice*, which began her career in 1867, was a vessel of 1,000 tons burden. There was good reason for the success of the route; emigrants moving westward with their families, teams, cattle and belongings, could travel over Lake Erie between Cleveland and Detroit in only seventeen hours at a saving of money and a week of time as compared with the journey made by land.¹⁹

For many people, only a generation removed from the wilderness, the steamers must have been a wonderful and exciting contrast to the ordinary monotony of every day life.²⁰ With bold and gleaming paint work, decorated paddle boxes, and tall stacks filling the sky with black smoke as their paddle wheels churned the water white, they were an impressive sight. In the daylight hours, the sun shown down upon the sails of schooners beating their way down the lakes; while at night the oil lamps of the steamers threw a feeble and fitful light into a darkness which seemed to have no boundaries save for the stars overhead. Within, the steamers offered a taste of luxury as well. When the *Baltimore* opened her season of navigation after a thorough overhaul in 1851, the *Detroit Free Press* reported that her cabins were "adorned with splendid paintings, got up in the most approved style of art . . ." Many visited the "new and elegant" *City of Cleveland* on her maiden voyage in 1857 with her "160 berths and . . . cabins . . . decorated in an elegant and tasteful style." The unlucky *Morning Star* was "splendidly furnished" for the comfort of her passengers.

If there was an atmosphere of luxury aboard the lake steamers, there was also considerable danger. The wooden ships were fire hazards and their engines were primitive and unreliable. Captains were too anxious to increase their reputation and that of their ships by racing, a practice


19. Editorial, *Daily True Democrat*, Cleveland, January 5, 1852.

20. One of the finest descriptions of the impression made by a steamer can be found in Chapter iv, "The Boy's Ambition," in Mark Twain's *Life on the Mississippi*.

which enlightened public opinion condemned as "entirely and criminally wrong." The waters of Lake Erie were crowded, and the islands breaking the surface of the western portion of the lake threatened shoal waters and lee shores in a gale. On an April evening in 1851, Captain Lawson A. Pierce took the *Southerner* out of Cleveland for Detroit. Off Avon Point a stiff gale swept away both of her stacks at 10:30 at night while heavy seas carried away part of her freight and baggage. Although the vessel was becoming unmanageable, Pierce was able to work her into shelter and anchor. The next day he was discovered by the steamer *Arrow* and towed to Detroit. Pierce was deservedly commended by his passengers for his coolness and seamanship, but it would be no disparagement of his ability to add that he was lucky as well.

In 1867, the two steamers, *R. N. Rice* and the *Morning Star*, provided regular service between Detroit and Cleveland. It was becoming apparent, however, that with the increasing trade, a new system of organization was needed to replace the loose and informal business relations that prevailed in the multiple personal ownership of the vessels. Incorporation was the answer, and the legal authority for such action was contained by an act passed by the Michigan legislature on February 21, 1867.

(To be continued)



Lake Michigan Navigation in the 1850s*

By RALPH G. PLUMB



THE 1850s WERE THE HEYDAY of waterborne commerce on Lake Michigan. At that time there were probably more craft to be seen on its waters than today although of infinitely smaller tonnage. The government had begun small works of improvement at Racine, Kenosha, Waukegan, Sheboygan, Manitowoc and Grand Haven besides continuing the humble beginnings at Chicago, Milwaukee, St. Joseph and Michigan City. These efforts were so inadequate that many localities undertook to build municipal piers and to do necessary dredging themselves, financed sometimes by village, city or county bond issues. But the cry for greater national assistance was growing more articulate every year.

Shipbuilding also was beginning to be a major industry in many a port. Whereas the earlier vessels had been almost entirely products of builders on Lake Erie or at Detroit, now the local trade at least was almost entirely carried on by Lake Michigan built craft. By the end of the period the construction of passenger steamboats had begun, later to become one of the chief industries of Chicago, Milwaukee and Manitowoc.

When the year 1850 opened, the steamboat trade down the lakes to Buffalo was largely in the hands of Captain Reed, which caused him to be denoted in the press as the "Napoleon of the Lakes." His line was scheduled so that after the opening of navigation in April there was a daily boat to and out of Chicago, with very few exceptions. These craft stopped in both directions at Milwaukee and, when freight or

* A continuation of *Lake Michigan Shipping 1830-1850* by R. G. Plumb which was published in *INLAND SEAS*, vol. 5, no. 2, Summer 1949.

passengers were of sufficient quantity or numbers, at Sheboygan and Manitowoc. His fleet contained practically all of the best steamboats on the lake and the opening advertisements listed them as follows:

Empire State, 1700 tons, Captain Hazzard
Keystone State, 1354 tons, Captain Stone
Niagara, 1094 tons, Captain Pease
Queen City, 1098 tons, Captain Carter
Louisiana, 900 tons, Captain Davenport
Sultana, 800 tons, Captain Appleby
A. D. Patchin, 879 tons, Captain Whitaker
Baltic, 825 tons, Captain Ludlow
Hendrick Hudson, 759 tons, Captain Imson
Albany, 669 tons, Captain Gager
Empire, 1138 tons, Captain Squier
St. Louis, 619 tons, Captain Pratt
Globe, 1200 tons, Captain Robinson

The chief independently owned steamboat on the lake was the *G. P. Griffith*, the illfated craft that burned on Lake Erie with great loss of life on her way to Chicago on June 17 of that year. There were also several propellers that were not Reed controlled, among them the *Ohio*, *Monticello* and *Lady of the Lake*. Rivalry as to speed was common, witnessed by the published offer of the captain of the *Empire State* that he would wager \$1000 and up to \$2000 that he could outrun the *Ocean*, a down lake steamer.

The Milwaukee *Sentinel* commented: "We are fearful of the result of this spirit of rivalry among the boats on the lakes. Thus far the traveling public have felt secure in making their journeys and such will not be the case if racing is to be the order of the day."

From Green Bay to Buffalo the Reed Line ran the smaller craft *Rochester*, 472 tons, and the *Michigan*, 642 tons, but not without competition from the line of boats connecting at New Buffalo, the terminus of the railroad. Captain Ward who ran this line known as the Michigan Central, warned the traveling public against monopoly, in his advertisements, and pointed out the three advantages his line offered over the Reed boats. These were said to be: (1) No danger of storms on Lake

Huron, (2) No liability of grounding on the sands of Lake St. Clair, (3) A shorter running time by one or two days. His largest boat was the *Canada*, 800 tons, Captain Butlin, and he still operated the older *Pacific* and at times the *Detroit* and the *Sam Ward*.

The tri-weekly service between Grand Haven, Milwaukee, Sheboygan and, when business permitted, to Manitowoc, was operated in 1850 by the 200 ton *Champion*, Captain Howe in command, while the steamers *Lexington* and the Chicago-built *Rossiter* made trips from that city to Green Bay. The *General Taylor*, 462 tons, and the *St. Joseph*, 479 tons, occasionally plied between the ports at the southern end of the lake.

The schooners of the larger type still controlled most of the down lake grain trade, assisted by the so-called brigs. Thus the *Monteith* is recorded as hauling 11,347 bushels of wheat in the summer of 1850 to Buffalo and the *Helfenstein* 11,000 bushels, while the brig *Lowell* loaded for Montreal. Local trade was largely handled by the home owned "hookers" and familiar names listed as trading to the little harbors up the lake are to be found in the published lists of arrivals and departures. Thus to Two Rivers, which seemed a favorite place of call for lumber, traded the *Cramer*, *Baltic*, *Twin Brothers*, *Speed*, *Liberty*, *Alvin Clark*, *E. Henderson* and *Marengo*; from Muskegon came the *Traveler*, *Henry Clay* and *Knickerbocker* loaded with lumber; the little *Pilot* sailed regularly to Sheboygan, and Manitowoc was the port of call of the *Citizen*, *Twin Brothers*, *Pilot* and *Rockwell*. New ports opened in 1850 for the lumber trade were Oconto, Sturgeon Bay and Bay de Noque which were visited by the *Nebraska*, *Crook* and *Cleopatra* respectively. Green Bay was the regular destination of the *Rockwell*, *Churubusco* and *Wyoming*. Manistee also furnished lumber and slabs to the Chicago and Milwaukee market. The extent of ownership in various craft is expressed in the report of the Western District of Lake Michigan, enumerating in 1850, 145 sailing vessels, four steamers, whereas Chicago alone boasted as the home port of two steamers, 58 schooners, 13 brigs and two proppers.

Navigation was not an easy task with unprotected shores, few lights and so great a reliance on wind as a means of locomotion. Thus in early summer of the year 1850 four steamers went ashore between Milwaukee

and Port Washington due to a heavy fog. Late in the season the schooner *Constellation* grounded south of Mackinac and had to jettison its cargo of three hundred barrels of cider, finally getting into Milwaukee so late that she had to discharge the remainder on the ice, since the river was frozen over. Again the Milwaukee *Sentinel* in a May issue calmly notes that "the schooner *Maurice* is drifting ashore near Racine with a cargo of oak planks strewn all over the beach."

The year 1851 saw a sharp decline in the number of craft trading on the lake. This was clearly manifest by the lists of arrivals and departures in a typical lake port such as Milwaukee. The larger craft no longer advertised as stopping there and the trade was largely confined, so far as down lake routes were concerned, to a number of propellers none of which were over 500 tons, assisted by the larger steamboat *Minnesota*, having a tonnage of a little over 800 tons. Tri-weekly service was maintained between Milwaukee and Grand Haven by the little *Telegraph*, while the Michigan Central operated from New Buffalo with the *Arctic*, Captain Butlin, and the *Pacific*, Captain Cooper. During the season a daily boat, the *Detroit*, made a trip to Sheboygan going thrice a week to Manitowoc and occasionally to Two Rivers. Green Bay trade was handled by the *Rossiter* and hopes were expressed that the new *General Harrison* would be put on the run regularly. A large part of the local trade remained in the hands of the schooners and the brigs. As an illustration here is the manifest for the schooner *Dousman*, on a trip to Manitowoc from Milwaukee. It reads: 120 bbls flour, 12 bbls fruit, 100 bushels corn, 50 bbls pork and 14 tons miscellaneous merchandise. From Sheboygan came such typical loads as the *Forester* with 90,000 feet of lumber. The rates of freight are also interesting, 80 cents a barrel from Chicago to New York on flour or 45 cents a barrel to Buffalo. It was in this year that the ill-fated *Lady Elgin* came out, mentioned in a Buffalo paper as "a fine model, with great capacity for storing freight. Success to her."

Not all was well in navigation circles and great was the demand for harbor improvement. When a steamer grounded on a bar right outside the harbor at Chicago the local daily called the event: "A monument of political wisdom and the enlarged views of certain patriotic (?) statesmen."

Such incidents as happened at Sheboygan where the *Minnesota* ran into a bridge pier as the waves washed against its unprotected sides, thus causing twenty cords of wood to fall off into the water, were a common experience. Mutual assistance was of course common, as when the *Lady of the Lake* stopped at the Fox Islands to pull off the steamer *Lexington* that had been ashore since the preceding fall and then passed vessels "many under way in the storm" all the way to Chicago. While the government started some small improvements under appropriations in 1852, the money was usually exhausted by merely sinking a couple of cribs around the river mouths. As the *Manitowoc Weekly Herald* remarked tersely: "The schooner *E. Henderson* beat about the bay for two days before getting in. She succeeded at last — no thanks to Congress."

By 1852 the *General Harrison* was on the regular Green Bay-Chicago run, one of her cargoes being described as consisting of "fish, trees and Green Bay currency-shingles."

The *Pacific*, *Baltic* and *Arctic* continued to serve the local ports on the west shore with a run to New Buffalo added on occasion, assisted by the new 603 ton *Traveler* which became a familiar sight all through the fifties in both Milwaukee and Chicago. On the Buffalo-Chicago run the most consistently regular operation throughout the whole decade was made by the steamer *Globe*, later rebuilt into a propeller. Under the command for most of the period of Captain Pratt, it was often the first to open the April season and the last to close it in December. It was a part of what was known as the Tri-Weekly Line, composed of the *Hudson*, *Sultana*, *Superior* and *Wisconsin*, some of whom had been a part of the older Reed Line. Independent lines in '52 ran the *Illinois* and the *America*, while the *Ogdensburg* began its trips to that port from upper lake ports. These craft were much patronized by tourists and in the words of the *Chicago Democrat*, "The steamer *Sultana* arrived this morning at eight o'clock. It is a luxury to even think for a few moments in weather such as this of a trip around the lakes."

The year 1854 saw the advent of the People's Line with the banner "No monopoly" at the head of its advertisements. It numbered among its craft the *Illinois*, *Baltic*, *St. Joseph*, *Minnesota*, *Delaware* and *Saginaw*. The same year the Chicago Lake Superior Line began calling attention to the service offered to the Soo from Chicago by the *Garden City* and

Queen City. The *Columbia* and *Fashion* maintained the Chicago-Green Bay run and the *Pacific* took over the Chicago-Milwaukee run. For several years the *Michigan* was placed on the Green Bay-Buffalo route. Said the *Green Bay Advocate*, "This steamer is now carrying heavier loads than any vessel that floats on the western waters and what is more pleasant is making a small fortune on every trip."

The same paper records another trip on which she brought 300 Belgians to settle in the rural districts east of that city.

The opening of the new railroad from the St. Lawrence ports across upper Canada to Collingwood made an opportunity in the spring of 1855 to herald the coming of the new Collingwood Line, operating from that port to all west shore Lake Michigan ports. Four craft were listed, all over a thousand tons, the *Keystone State*, *Lady Elgin*, *Niagara* and *Queen City*. In addition the slightly smaller *Louisiana* was routed to Green Bay under the same operation. For two or three years this line seemed to monopolize most of the trade but before 1860 it had faded away and the later years saw only the *Evergreen City* and *Ontonagon* making occasional trips to the Georgian Bay port. It was 1855 also that witnessed the disintegration of the Ward Line which had maintained most of the local trade on Lake Michigan during the previous six or more years and the purchase of the boats by its employees. First among these was Captain A. E. Goodrich who was destined to become the outstanding figure in Lake Michigan for a generation. The newspapers chronicled his first trip on his new purchased craft, the *Huron*, on September 21st when he took a cargo and ten passengers to Green Bay. It was recorded that the boat was owned by George Drew but this may have been one of the other former employees of Ward as eleven of them joined in share purchasing. It was not more than a year later when he had become owner of the *Ogontz* and had placed Captain Flood in command, making the run to Green Bay and ports en route, a boat the Kewaunee *Enterprise* declared "in every way to be relied upon." It was not long before Goodrich was joined by another of the pioneer Ward captains, F. G. Butlin, who after serving Ward on the Lake Superior route, purchased stock in the Goodrich enterprise, became general superintendent and upon the death of Mr. Goodrich, was its president for a time. Another Ward captain, Barney Sweeney, who had

commanded the Chicago-Milwaukee boats, among them the *Traveler* owned by some successors of Captain Ward, joined the Goodrich forces and was a familiar figure on Lake Michigan for a generation.


The grain trade continued to be largely in the hands of the larger sailing vessels, brigs and schooners. It was in the year 1856 that the first cargo direct to Europe from Milwaukee was shipped. The *Dean Richmond* was the craft that had the honor, leaving for Liverpool with a load of wheat under command of Captain D. C. Pierce. Smaller boats under sail carried a large part of the local traffic between the smaller ports as before, among them the *Col. Glover*, *Clipper City*, *Transit*, *Pilot*, *Churubusco*, *Cramer* and *Gesine*. They were not expensive to build nor to operate. Even the larger *Helfenstein* was sold during this period for the sum of \$6800.

Two terrible disasters marked the season of 1856, the burning of the *Niagara*, one of the Collingwood liners, and the sinking of the propeller *Toledo*, both not far from Port Washington. Over fifty lives were sacrificed in each of the catastrophies. The *Niagara* left Collingwood for Milwaukee with a crew of fifty-six and some one hundred cabin and steerage passengers, Captain Miller in command, on September 22nd. Two days later flames suddenly burst out and spread rapidly. The Captain thought the fire was caused by ignition of combustibles in the freight that had been stowed under the shaft but there were rumors of incendiarism that would not down. Just a month later the *Toledo*, one of the American Transportation liners, also bound for Milwaukee, was caught by a storm and overwhelmed so suddenly that she could not even be beached, but settled on the bottom not far from shore.

The year 1857 marked a considerable preponderance of propellers over the older type of steamboats. The American Transportation Company operated nine, chief among them the *Nile*. The Western Transportation Company boasted ten craft, among them the *Mount Vernon* and the *Plymouth*. The New York Central Line had eight boats, among them the *Fountain City* and *Evergreen City*; the Oswego Line three, the People's Line five; the Northwestern Transportation organization sailed the redoubtable *Globe* and six others, and finally the Northern listed several craft. Of the local lines the old *Huron* made trips from Chicago to Grand Haven under Captain Morgan while the little steamers *Robert*

Foss and *Ottawa* plied from the same port to Muskegon. Captain Butlin took care of the Chicago-Milwaukee business with the new 1164 ton *Planet*. When another season rolled around the *Lady Elgin* had been transferred to the Chicago-Lake Superior run, while the same year (1859) witnessed the institution of a regular schedule between Milwaukee and Grand Haven, there to connect with the new railroad running east across the state of Michigan. This service was offered by the *City of Cleveland*, the *Cleveland* (not the same craft as the first named), the *Milwaukee* and the *Detroit*.

The decade ended with the *Traveler* plying between Chicago and Milwaukee with Captain Sweeney in command, with the *Michigan* still running east from Green Bay, with the *Ogontz*, the *Arctic* and the *Gazelle* calling at all west shore ports and including Green Bay, while the *Lady Elgin* stopped at many of them on its Lake Superior route. Buffalo, Oswego and Ogdensburg were the destinations of the lower lake lines while the lake was dotted all through the season with little schooners sailing to and from the local harbors, hailing from time to time the larger three-masters loaded with grain for the eastern markets.



The American Grain Trade of the Great Lakes, 1825-1873

By THOMAS D. ODLE

PART I INTRODUCTION



BETWEEN 1825 AND 1873 THE EAST NORTH CENTRAL AREA, embracing the states of Ohio, Indiana, Illinois, Michigan, and Wisconsin, was preeminently a grain-raising section. In 1825 the completion of the Erie Canal made possible a grain trade from this area via the Great Lakes and the Erie Canal to the eastern United States. For about fifty years the character of this grain trade remained essentially the same, but by 1873 certain developments had begun to alter its character.

By that year the railroads linking East and West had worked fundamental changes in the nature of the trade, while at the same time the major ports on the Great Lakes — Cleveland, Toledo, Detroit, Chicago, and Milwaukee — which had owed such a large share of their prosperity to the grain trade, were no longer so dependent on that trade as they had been formerly. The East North Central area, for which these Great Lakes ports and others were the commercial outlets, continued to produce millions of bushels of grain each year after 1873, but the center of grain production in the United States had moved farther westward. This movement brought the breadstuffs trade of the western ports of Lake Superior into being, and after 1873 the grain trade from this region began to be one of the most prominent features of the Great Lakes grain trade.¹

1. The grain trade of the Great Lakes after 1873 is treated in Frank Andrews, *Grain Movement in the Great Lakes Region*, U. S. Department of Agriculture, *Bulletin* 81.

The East North Central area of the United States is well defined geographically. The Great Lakes form its northern and eastern boundaries, and the Mississippi River and its tributary, the Ohio River, form its southern and western borders.

The Great Lakes and the Mississippi River were the two natural water routes of transportation from this area. The Mississippi River with its outlet below New Orleans, was a route to the South, whereas the Great Lakes constituted a route to the East.

The grain which was shipped from the East North Central area over these two routes was destined for areas where there was an insufficient supply of breadstuffs. In the United States before the Civil War the two general areas of which this was true were the New England-Middle Atlantic states and the South. The New England-Middle Atlantic states market was a larger market for breadstuffs than the South. During the pre-Civil War period, for example, part of the grain which took the route down the Mississippi River toward the South was later shipped from the port of New Orleans to ports on the north Atlantic coast.

The opening of the Erie Canal in 1825 confronted the Mississippi River route with a competitive route by which the grain of the East North Central area might be shipped to the New England-Middle Atlantic states market. This canal made the Great Lakes usable as a route from West to East because it connected the Great Lakes with the Hudson River. The natural outlet of the Great Lakes to the Atlantic Ocean is by way of the St. Lawrence River, but this route could not be commercially used because of the obstacle to navigation formed by Niagara Falls, and because of the series of eight rapids in the St. Lawrence River.

The Erie Canal by-passed Niagara Falls. The route of this canal presents the appearance of a canal extension of the Great Lakes from Buffalo, New York, at the eastern most end of Lake Erie (above Niagara Falls) to the Hudson River at Albany and Troy.

In 1829 still another route to the eastern United States was opened. This occurred with the completion of the Welland Canal, an eight-foot deep ship canal past the Canadian side of Niagara Falls, and the Oswego branch of the Erie Canal. Construction companies building the Welland Canal, however, found that the western terminus of the canal on the

Niagara River above the Falls was too difficult of access, and as a consequence this route did not come into commercial use until a new western terminus was opened at Port Colborne, on Lake Erie, in 1833.² The Welland-Oswego route made it possible for lake vessels to go past Niagara Falls and then sail to Oswego, a port on Lake Ontario. From there the Oswego Canal connected with the Erie Canal.

The canal system of New York state thus had two main western termini — one at the port of Oswego, on Lake Ontario, below Niagara Falls, and the other at the port of Buffalo, on Lake Erie, above Niagara Falls.

The mere existence of these canal routes to the East via the Great Lakes, however, was not enough in itself to assure a growth of trade on the Great Lakes. These routes had to be supplemented if westerners were to use them because at the time when they became available most of the population of the East North Central area was concentrated in the river valleys in the southern part of that area. To reach the Great Lakes from these river valleys an arduous haul by wagon was required. This difficulty, however, was overcome by a series of canals which were constructed by the state governments of Ohio, Indiana, and Illinois. These canals connected the Great Lakes with tributaries of the Mississippi River: Lake Erie was connected with the Ohio and Wabash Rivers and Lake Michigan with the Illinois River. The following is a list of these canals:

<u>Year of Completion</u>		<u>Termini</u>
Ohio and Erie	1833	Portsmouth, Ohio; Cleveland.
Miami and Erie	1845	Cincinnati, Toledo.
Wabash and Erie	1851	Evansville, Indiana; to Indiana state line. Connected at Defiance, Ohio, with the Miami and Erie Canal.
Illinois and Michigan	1848	LaSalle, Illinois; Chicago.

The movement of grain over the transportation system of the Great Lakes was mainly a wheat movement. The shipment of corn began to be important only after 1845. After that year, however, the movement

2. William L. Bancroft, "Memoir of Capt. Samuel Ward, with a Sketch of the Commerce of the Upper Lakes," Michigan Pioneer and Historical Society, *Collections*, vol. 21, p. 358.

of corn was consistently second in volume to that of wheat. The shipment of oats began to be important after 1850. Thereafter oats ranked third in the volume of grain shipments on the Great Lakes. The movement of barley and rye, compared to the movement of wheat, corn, and oats, never became important.

The largest purchasers of corn and oats in the eastern United States were livestock raisers. The most important use of both these grains is in the production of beef and pork. Because there were also livestock raisers in the West who used corn and oats to produce pork and beef, the shipment of barreled pork and beef from the West may be regarded as a grain movement in a disguised form. A former New York Canal Commissioner expressed this point by saying, ". . . what is a hog but fifteen or twenty bushels of corn on four legs?"³

Although there was a close connection between the main products which the West sold to the East — grain and meat — the grain trade and the provisions trade, as the trade in barreled meat was called, were somewhat different from each other. The grain trade was conducted by commission merchants in the West who sold grain for the farmer, while the provisions trade came to be dominated by meat packers.

The wheat which was shipped on the Great Lakes to eastern markets went forward either as flour which was shipped in barrels from the small flour mills in the West, or as bulk wheat which was destined for the large milling industry of New York State. The milling centers of that state were located along the line of the Erie Canal at Rochester, Troy, Oswego, and Black Rock (the last-named is now a part of the city of Buffalo).

Until the early 1850's the movement of wheat from western millers in the form of flour was about double the amount of the bulk wheat shipments to the New York millers. This flour came mostly from small

3. Cited in William Kingsford, *The Canadian Canals: Their History and Costs with an Inquiry into the Policy Necessary to Advance the Well-Being of the Province*, p. 147. The remark was made by Samuel B. Ruggles.

flour mills in the hinterlands of Cleveland and Detroit.⁴ After 1850, however, more bulk wheat than flour was shipped and the proportions were almost exactly reversed. After that year the New York millers increased their purchases of western wheat, and at the same time foreign demand brought an increase in the export of bulk wheat.

The foreign demand for American grain — Great Britain was consistently the largest foreign purchaser — never assumed large proportions, however. This was true even after the repeal in 1846 of the British Corn Laws, a shifting-scale of protective tariff duties which increased in amount as the British price for grain decreased. In the period prior to 1868, the amount of wheat exported in any year never exceeded 15% of the total wheat crop of the nation. Thereafter, however, the export of American wheat did increase, but until 1877 the highest percentage exported in any year (1873) was still only 30%. Wheat figured more largely in American exports than any of the other grains. Corn was second in foreign demand, but oats, barley, and rye were relatively unimportant in the export trade.

To the American farmer the importance of the repeal of the British Corn Laws lay not so much in the increased size of the foreign market which was thereby opened to American grain but rather in the salutary effect on United States grain prices. The editor of *Niles' National Register* explained this fact in 1846 as follows:

It must be borne in mind, that the selling price of the whole of the grain produced in this country, is regulated almost entirely by what we can obtain for the small portion that we succeed in finding a foreign market for, — and which never amounts to one-twentieth of what we raise! ⁵

The reason why the foreign demand for grain exerted an effect on United States grain prices was that the United States produced a surplus of grain above domestic needs. When no foreign market was available for this surplus it was offered for sale in the domestic market. This exerted a depressing effect on the entire domestic grain crop of that year because it increased the amount of grain available for sale, and

4. *Senate Executive Documents*, No. 23, 31 Congress, 2 session, 601. Previous to 1879 a standard barrel of flour of 196 pounds was considered equal to five bushels of wheat. U. S. Treasury Department, *Report on the Internal Commerce of the United States*, 1882, p. 211.

5. *Niles' National Register*, vol. 69, p. 69.

grain prices tended to reflect supply and demand factors. The repeal of the British Corn Laws, therefore, did not open a large market for American grain, but it did supply a sizeable vent for the grain surplus of the United States and thus helped the American farmer price-wise.

In general the source, markets, and outlets of the Canadian grain trade of the Great Lakes were separate from the American grain trade. As foreign vessels, Canadian-owned vessels were forbidden by the navigation laws of the United States from engaging in the American grain trade.⁶

Montreal was the entrepot of the Canadian grain trade. Until 1847 the Canadian and American grain purchased by the Montreal grain merchants reached that city by means of the Ottawa-Rideau system of canal navigation, a route from Kingston, on the Canadian shore of Lake Ontario, to Montreal. This canal system was begun by the British government in 1826 and completed in 1832. It skirted the rapids in the St. Lawrence River by means of an inland canal route from Kingston to Bytown (now Ottawa), with transportation via the Ottawa River available from there to Montreal. The Montreal grain merchants handled the marketing of the grain crop of Lower Canada (now the province of Ontario) because the grain crop of this region was excluded from American markets by a protective tariff duty of 25 cents a bushel.⁷ This grain was marketed mainly in Great Britain and in the maritime provinces of Nova Scotia, New Brunswick, and Prince Edward Island. When the Montreal merchants could not obtain enough grain to meet the needs of these markets they also imported American grain under nominal import duties.

The St. Lawrence ship canal system, on which work had been begun as early as 1821, was finally finished in 1847. This route made it possible for Montreal's grain trade to follow the direct route down the St. Lawrence River. However, transshipment to ocean-going vessels was necessary at Montreal for the voyage overseas, because the St. Lawrence

6. *Canadian Sessional Papers*, 1871, No. 54, p. 34.

7. Robert L. Jones, *History of Agriculture in Ontario, 1613-1880*, University of Toronto Studies, *History and Economic Series*, vol. 11, p. 123.

Canals had a limiting depth of nine feet, and most ocean-going vessels drew more than nine feet of water.

Because of this limitation in depth it was more economical to use larger vessels on the Great Lakes and transship their grain cargoes to canal boats on the Erie Canal than to ship grain directly to the East via the St. Lawrence River. This became evident during the period from 1855 to 1866 when the Elgin-March treaty of tariff reciprocity was in force between the United States and Canada. During that period the lakes basin was a free-trading area, and article four of the treaty permitted American vessels to navigate the St. Lawrence Canals.⁸ A direct trade down the St. Lawrence River (mainly to Great Britain) quickly sprang up from Chicago, Cleveland, and Detroit, but this trade died out as quickly as it appeared because it was found to be commercially unprofitable to use the small vessels which were required in the navigation of the St. Lawrence River.

Montreal never received a very large proportion of the total grain movement on the Great Lakes. One of the commercial leaders of Montreal estimated in 1859 that his home city in the course of the previous decade had received an average each year of about 8% of the total eastward movement of grain on the Great Lakes. Of this amount he estimated that one-third was retained in Montreal, and two-thirds was sent down the St. Lawrence River — a portion for export and the remainder for consumption at points along the river and in adjacent districts. In the years after 1859 the proportion of the grain movement received at Montreal remained about the same.⁹ These figures indicate that the grain trade of the Great Lakes was largely an American grain trade and it is that part of the trade with which this series is concerned.

THE SOURCES OF THE GRAIN TRADE OF THE GREAT LAKES AND THE DIVERSION OF TRADE TO THAT ROUTE

The American grain trade of the Great Lakes in the course of its development up to about 1873 reflected the stage by stage diversion of a

8. George W. Brown, "The Opening of the St. Lawrence to American Shipping," *Canadian Historical Review*, vol. 7, p. 12.

9. *Canadian Sessional Papers*, 1871, No. 54, p. 159.

portion of the grain trade of the East North Central area from the Mississippi River to the Great Lakes route. It reflected also two other factors: the gradual settlement of, and the production of a grain surplus in, the areas close to the Great Lakes, and finally, after 1850, the commercial revolution in the internal trade of the United States which was occasioned by the telegraph and railroad. As a result of this latter change Buffalo lost to Chicago its position as the largest grain and flour market in the United States.

The diversion of trade from the Mississippi River to the Great Lakes was accomplished through the medium of such port cities as Cleveland, Toledo, Chicago, and Milwaukee. The important commodities which these centers diverted to the Great Lakes were grain, pork, beef, wool, and cheese. Of these commodities, grain (including flour) was by far the most important, as the following table of the commodities shipped eastward from Buffalo on the Erie Canal indicates:¹⁰

<u>Articles</u>	<u>1835</u>	<u>1840</u>	<u>1845</u>	<u>1850</u>
Flour, bbls.	100,883	639,633	721,891	984,430
Wheat, bushels	168,012	883,100	1,354,996	3,304,697
Corn, bushels	14,579	47,885	33,069	2,608,967
Provisions, bbls.	6,502	25,070	68,000	146,836
Ashes, bbls.	4,419	7,008	34,602	17,504
Wool, pounds	140,911	107,794	2,957,007	8,805,817
Cheese, Butter & Lard, pounds	1,030,632	3,422,687	6,597,007	17,534,981
Staves, number	2,565,272	22,410,660	88,296,431	159,479,504

The diversion of the grain trade from the Mississippi River route to the Great Lakes route was not a complete diversion; the South continued to be a market for grain. The diversion which did take place injured the former coastwise grain trade of New Orleans with the ports of the Atlantic coast, but a certain proportion of the grain of the East North Central area continued to be sent down the Mississippi River to supply the southern market. This grain came from the southern part of the

10. *Senate Executive Documents*, No. 112, 32 Congress, 1 session, p. 92. These figures do not include the statistics of the movement through the Black Rock entry to the Erie Canal.

East North Central area, and the importance of this trade should not be overlooked. For example, in 1860, St. Louis and Cincinnati, which were the entrepôts of this grain trade, were respectively the third and fifth largest primary grain receiving points in the United States. The receipts of the larger primary grain markets in 1860 were as follows:¹¹

Not only was the diversion to the Great Lakes route incomplete, but in addition the diversion which did take place occurred in stages. It began at the time of the completion of the Ohio and Erie Canal in 1833, and in the remaining years of the 1830's almost all the grain and flour which arrived at Buffalo and Oswego from the West came from Cleveland, the Lake Erie terminus of the Ohio and Erie Canal. The rapidity with which this trade was developed is indicated by Cleveland's grain receipts in 1833. In that year Cleveland received 386,760 bushels of wheat and 98,302 barrels of flour for shipment to the East — an enormous amount of breadstuffs to be handled by the commercial men of a village which then numbered less than 3,400 people.

Other ports along the Ohio shore — Huron, Sandusky, Milan, Ash-tabula, and Fairport — also developed as centers of grain export, but except for Sandusky, which was active in the construction of railroads into the populous southern part of the state, the grain trade of these ports was gradual in its development and reflected the slow settlement of the northern section of Ohio.

(To be continued)

11. Louis B. Schmidt, "The Internal Grain Trade of the United States," *Iowa Journal of History and Politics*, XIX (1921), 449.

	<i>Total grain, including flour reduced to its equivalent in bushels</i>
Chicago	37,235,027
Toledo	14,504,903
St. Louis	12,220,990
Milwaukee	11,102,042
Cincinnati	6,368,302



The Tom M. Girdler

By BERTRAM B. LEWIS



PASSAGE UP THE MISSISSIPPI RIVER AND ILLINOIS WATERWAY to the Great Lakes of the big iron ore carrier *Tom M. Girdler*, second in a growing parade of ore vessels making the same voyage, marked the establishment of at least two navigation "firsts."

The "Big Tom," named in honor of the chairman of the Republic Steel Corporation, was the widest ship ever to make the Gulf-to-Chicago run. She also was the first Great Lakes vessel to bear the insignia of Republic, which next season will have two more former ocean cargo ships in its new fleet.

These will be the *Charles M. White*, named for the corporation's president and now being readied for service at South Chicago, and the *Troy H. Browning*, which, as this is written, is nearing Lockport, Illinois, on her way to the lakes.

Browning, colorful president of the Browning Steamship Company of Detroit, is operations manager of Nicholson Universal Steamship Company, which owns the three freighters. Republic has a controlling interest in the company.

Browning, a lake sailor in his youth, was one of the first to conceive the idea of converting government surplus ocean freighters to ore vessels on the Atlantic coast, as a means of bypassing the jammed lakes area shipyards, and bringing them to the lakes by way of the Mississippi. He played an important part with other lake shipping figures in promoting legislation to permit transfer of government ships to lake operators.

To the *Cliffs Victory*, owned by the Cleveland-Cliffs Iron Company, however, goes the honor of becoming the first converted ocean carrier to arrive on the lakes from the coast.

Nicholson Universal bought the three C-4s from the Federal Maritime Administration early in 1951. Completed by Kaiser Vancouver in 1946, the craft serviced the armed forces overseas for a time and then were laid up in standby condition in the maritime administration's reserve fleet at Fort Eustis, Virginia.

The three 520-foot C-4s were brought to the Maryland Drydock Company's yards at Baltimore in February and each was cut in half, the forward sections being sold as scrap and the stern ends remaining in drydock.

Meanwhile, new forward sections for each ship were started by the Ingalls Shipbuilding Company at Pascagoula, Mississippi. Launched bow first, as it was feared a stern launching would place unnecessary strain on the bulkheads which allowed it to float, the *Girdler's* forward section arrived in Baltimore on July 26 after a 10-day tow from the Gulf.

It was placed in drydock with the stern section and on July 27 the two half ships were joined by welding and riveting — joined in holy "weldlock," as it were.

The complete vessel was undocked on August 12 and on August 16 was christened by Mrs. Girdler in the presence of several hundred persons, including steel and shipping company representatives from all parts of the country, Washington officials and shipyard employees.

Before the ship left the drydock a pair of huge pontoons were welded to the *Girdler's* stern, reducing her draft from 15 to eight feet. This would allow her to pass through the Mississippi's shallowest waters. The rudder, propeller and most of the superstructure were left for installation at Chicago.

On August 21 the *Girdler*, which in her "pre-operation" days had been known as the *Louis McHenry Howe*, left Baltimore in tow of an ocean tug on her 14-day run to New Orleans. It was 14 days of the calmest weather imaginable, for the ship arrived at New Orleans with a bucket of paint, left on a pontoon at Baltimore by a workman, still upright.

The voyage to Chicago took 16 days. The pontoons were removed at Lockport to reduce the ship's height so she could pass under several low fixed bridges. Thousands of Chicagoans gathered on the banks of

the Chicago River to witness the passage of the huge carrier through its narrow bridges.

The *Girdler* negotiated all obstacles safely and arrived at the South Chicago yard of the American Ship Building Company on September 28 when the work of putting her in shape for operation began.

This completed, the vessel steamed out into Lake Michigan on October 21, a gray, dismal Sunday, to begin her shakedown cruise, during which she performed satisfactorily and was declared ready to go to work.

The next day she tied up at the Chicago & North Western ore dock at Escanaba, Michigan, and loaded her first cargo of 13,900 gross tons of ore.

Performances of the three Republic vessels and the *Cliffs Victory* will be watched closely next season, particularly as to speed. Although her owners have been reluctant to discuss her speed possibilities, the *Cliffs Victory* has been reported to go as fast as 22 miles an hour light and 20 miles an hour loaded.

The Big Tom has attained a rate of "almost" 21 miles an hour loaded, according to her owners, who are convinced that she will not have to take the wash of any ship.

Unless the two carriers are pitted against each other in an old-fashioned steamboat race, which seems highly improbable, the question of which is the speediest may have to be left to the judgment of the gentlemen with slide rules.

Principal characteristics of the *Girdler* are: length overall, 602 feet; beam, 71½ feet; molded depth, 35 feet; capacity, 14,500 gross tons; gross tonnage, 9,115 tons; net tonnage, 4,497 tons; power, steam turbine; fuel, oil; horsepower, 10,000; crew, 40.



S. S. Tom M. Girdler at ore docks, Escanaba, Michigan.



S. S. Tom M. Girdler receiving ore at Escanaba, on maiden voyage to Cleveland. Photographs by courtesy of the Republic Steel Corporation. (See page 248.)



THE *South American* at the Soo in '49. Photograph by Clarence Berg. (See page 257.)



OLD FORT MACKINAC, 1938. Photograph by Carl McDow. (See page 257.)



STEAMER *City of Detroit III.*



GRAND SALON OF THE *City of Detroit III.* Photographs from *The American Ship Building Company*, Cleveland, 1915. (See page 259.)



THE *Shenango*. Photograph gift of Fred Plantico. (See page 274.)



THE *Charles C. West*. Photograph gift of Fred Plantico. (See page 274.)



THE *Adam E. Cornelius*. Photograph by courtesy of Fred W. Dutton. (See page 277.)



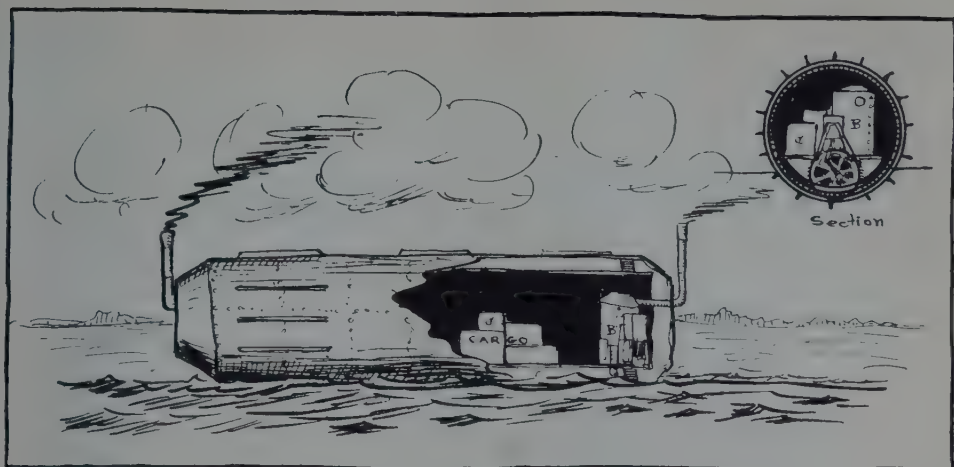
THE *Fred G. Hartwell*, Hanna Steamship Company, at Cleveland. Photograph by Carl McDow. (See page 272.)



SIDE WHEELER *Greater Detroit*. Photograph by Captain W. J. Taylor, from *Green's Great Lakes Directory*, 1944. (See page 220.)



THE *City of Cleveland*, D & C Line. Photograph by courtesy of R. G. Wendt. (See page 224.)



THE KNAPP ROLLER BOAT, drawn from memory and description of R. S. Duncan
by F. C. Curry.



THE KNAPP ROLLER BOAT FROM THE *Scientific American*, October 8, 1898.
(See page 270.)



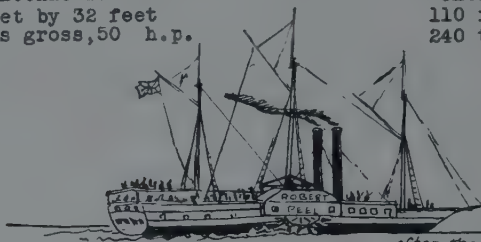
after Snider

"Frontenac" 1816
170 feet by 32 feet
700 tons gross, 50 h.p.



after Hough

"Ontario" 1817
110 feet by 24 feet
240 tons gross, 21 h.p.



The "Robert Peel" after the "Michigan"
1837



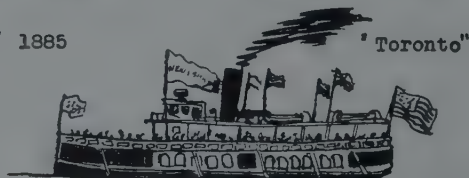
from photo

"Rothesay" 1885



from photo

"Toronto" 1899



from photo

"New Island Wanderer" 1895

TYPICAL NINETEENTH CENTURY LAKE AND RIVER BOATS sketched by F. C. Curry.
(See page 264.)



Vacation Voyages on Inland Seas

By PAUL T. HURT, JR.

PART III



THE 1940 CRUISE also marked the end of my "bachelor" days on the lakes, for the following spring I took unto myself a wife, and it was with much wondering that I introduced her to the pastime of Great Lakes cruising in 1941. That season we started out with a Fourth of July week-end trip on the *Noronic* from Detroit up to the Soo, then boarded the *Hamonic* for the return. Over Labor Day week-end we took the *Alabama* out of Chicago for Sturgeon Bay, Sault Ste. Marie and Mackinac Island, though we never quite got to the Soo on that trip. A heavy fog extending northward and eastward from the Straits of Mackinac completely enveloped the entire St. Mary's river and the Soo. For several hours the *Alabama* lay at anchor in Lake Huron just east of Mackinac. About noon the *South American* on the Labor Day trip out of Cleveland and Detroit arrived, and though we could not see her, she passed by so close to the *Alabama* that we could hear the shouts and laughter of her crew and passengers as the two Georgian Bay Liners exchanged salutes. Both ships then turned back toward the Island, and instead of a cruise up the St. Mary's river, a veritable Georgian Bay Line convention was held at the Grand Hotel on Mackinac Island. The *North American* came in that evening also, so it was a gala affair with three Great White Liners in port together. It is still rumored that some of the Chicago passengers became "confused" and wound up in Detroit on Tuesday morning instead of Chicago. Gene Fenby, the orchestra leader on the *Alabama*, had written a rollicking little tune that year called, "I'm Lonesome For the *Alabam'*," which was the theme song of the cruise. My bride decided that she liked cruising the inland seas, so the future of my traditional summer's cruise was guaranteed.

In 1942 I had enlisted in the Army Air Forces but had not yet been called to active duty, so there was time for one more cruise before my orders came. We took the *South American* on the week's cruise from Buffalo to Isle Royale and Duluth. The *North American* was still maintaining the Chicago to Buffalo run, and the *Alabama* had been shifted to a five day trip out of Chicago to Houghton, plus a week-end trip to Sturgeon Bay and Mackinac Island. The 1942 Duluth trip was most interesting because of the effect of the war effort on lake shipping. Every freighter that could float had been mustered into active service, and the traffic up and down the "main line" was tremendous! The Soo locks were carefully guarded by American and Canadian soldiers, complete with machine gun nests, anti-aircraft guns and barrage balloons. No visitors were permitted at the locks so the only way one could observe them was to be aboard a vessel actually locking through. The only sad part of the trip from my standpoint was the ruling that no cameras could be permitted on deck while in port, passing through the Soo or cruising in the channels of the St. Mary's river and the St. Clair river. Therefore, my photographic record of the 1942 cruise was limited to pictures of life at sea and at Isle Royale which was a wilderness.

Again, the list of passenger ships on the lakes was shrinking. The Navy commandeered the side-wheel steamers *Seeandbee* and *Greater Buffalo* for conversion into aircraft carriers. As the *U. S. S. Wolverine* and *U. S. S. Sable* respectively, these once proud passenger ships trained thousands of Naval aviators in carrier operation on the waters of the Great Lakes. One addition had been made the previous year, however, to the passenger ship roster. The old *Juniata* of the Great Lakes Transit Corporation had been taken over by the Wisconsin & Michigan Steamship Line and rebuilt into the new *Milwaukee Clipper*. As the *Clipper*, she was again sailing the waters of Lake Michigan between Milwaukee and Muskegon. The *Octorara* had found her way to salt water as an Army transport.

The ensuing three years found me flying in B-24's as a Navigator for the Army Air Forces, and my only contact with the Great Lakes in all that time was during the summer of 1945, when on a training mission from Westover Field, Massachusetts, to Cleveland and back we flew out over Lake Erie at 1,500 feet. There on the blue waters below us was a familiar ship steaming placidly along, enroute to Detroit — the *S. S.*

North American. And, in Cleveland harbor we noted the D. & C. Steamer *City of Detroit III*. Also, at that height, one could see an endless parade of the "Long Ships Passing" on the route from the Detroit river to Buffalo and other lower lake ports.

By 1946 I had returned to civilian life, and a vacation was planned as usual — a week's cruise on the *North American* from Chicago to Buffalo and return. After so much flying and traveling for the Air Forces, I rather wondered whether the spell of the inland seas would still exist, but all the *North American* had to do was cast off and head out into the blue waters of Lake Michigan — it did! My friend, Frank Ammatuna, was still a Lookout aboard the ship. Many happy hours were spent in catching up on Great Lakes gossip during the cruise. The list of passenger vessels remaining on the lakes was still dwindling. Tied up at Navy Pier in Chicago were the two Navy aircraft carriers, the *U. S. S. Wolverine* and the *U. S. S. Sable*, no longer needed now that the war was over. Also, the burning of the palatial *Hamonic* of Canada Steamship Lines at Sarnia in 1945 was regarded as almost a personal loss. In the St. Clair river we passed the old *Huronic*, retired from passenger service several years previously, and then used for freight transportation only. The proud *Alabama* had gone down to Cleveland under new ownership for excursion service out of that city.

Throughout the Great Lakes area there seem to be other people, who, like myself, annually heed the lure of the lakes and return again and again for a vacation cruise on the passenger vessels. Several have now become good friends of mine. One man in particular, I believe, should be mentioned in recognition of a musical composition of his that is dedicated to the Great Lakes. Were it not for his modesty, the composition entitled *Cruise Suite* might possibly become highly acclaimed in musical circles. Those of us who have had the privilege of hearing *Cruise Suite* have instantly recognized it as a marvelous tone picture of cruise life on the Great Lakes. The composer is Albert H. Dowling of Youngstown, Ohio, musical commentator and drama critic for Radio station WKBN. I first met Bert Dowling aboard the *North American* on the 1946 cruise, though he had been sailing the ships of the Great Lakes far longer than I. However, after a week together, a friendship was formed through this common love of the lakes which has carried on

to the present day. And it was in 1946 that Bert wrote his *Cruise Suite*. The composition is divided into three parts entitled — 1. *A Freighter Passes*, 2. *Life At Sea* and 3. *Evening at Mackinac or Pathway To The Moon*. Together, these three selections form a suite of mood music about the lakes that is hauntingly lovely. In fact, because of its almost reverent mood, the third selection, *Evening at Mackinac (Pathway To The Moon)* has often been played by Bert on the organ as the offertory selection during the Sunday church service at his church in Youngstown. Now, whenever Bert Dowling appears aboard a Georgian Bay Line ship, he is constantly requested to play his *Cruise Suite* by passengers and crew alike.

With the Canadian Pacific steamships still maintaining their thrice-weekly sailings between Port McNicoll and Fort William, we planned our 1947 vacation around the five day cruise on the *S. S. Assiniboia*. The staid quaintness of this superb Clyde-built Great Lakes liner that had been in service on her route for forty years made the trip a highly fascinating one. Cuisine and service were excellent. The quiet atmosphere aboard the *Assiniboia* was in sharp contrast to the more rollicking gaiety found on the American cruise ships. And a somewhat foreign flavor was imparted due to the fact that there were only a dozen or so Americans among the 270 passengers on the *Assiniboia*. Those of us from the States found much to our surprise that there were no Coca-Colas obtainable on the ship. However, this situation was quickly remedied in Fort William. After the layover in port we returned to the *Assiniboia* laden down with cartons of cokes, and sailed down the lakes toward Port McNicoll leaving a trail of empty bottles in our wake.

Incidentally, a departure from Port McNicoll on the south-eastern shores of Georgian Bay aboard one of these gallant Canadian Pacific steamers is one of the most colorful sailings that can be found on the lakes. Port McNicoll is the eastern terminal of the Great Lakes steamship route that offers a variation to transcontinental train passengers on the Canadian Pacific Railway. An hour before sailing time the ship moves down toward the end of the pier to await the arrival of the boat-train from Toronto. In midsummer this C. P. R. dock is a dazzling array of flowers formally arranged about a crisp, green lawn edged with white-washed boulders. At the base of the flagpole the name "Port McNicoll" is spelled out on the grass by the boulders. Sailing time is 5:30 in the

evening, and at 5:15 the shrill toot of an engine is heard from the neighboring hills. Around a bend comes the boat-train, spanked along by a prancing little Pacific locomotive which chugs its consist of four or five cars right out onto the pier beside the waiting steamer. Two hundred or so passengers step down from the cars and come aboard ship, while busy cabin boys race their luggage aboard. Then, with a sharp blast from the deep-throated ship's whistle, the lines are cast off, the propeller churns the harbor waters into an angry swirl, and the stately Canadian Pacific liner heads out into the channel of Georgian Bay, turning westward toward the setting sun and Fort William two nights and a day away.

The next two seasons we went back to the S. S. *North American* and short cruises to Mackinac Island. It was during this period that the gallant *Alabama* was repossessed by the Georgian Bay Line from the Cleveland owners and retired to a berth at the company's winter quarters in Holland, Michigan. There she lies today, with too small a capacity to be economically and profitably operated in the passenger cruise trade, but proud and silent, as though dreaming of days-gone-by when she was the flagship of the great Goodrich fleet.

It was also in September of 1949 that the *Noronic* was seen for the last time. The *North American* had sailed from Cleveland bound for Chicago at the end of the season, and enroute the big *Noronic* slid past on her way to Cleveland and Toronto and the tragic date with disaster at the Toronto pier. As I returned home from the cruise aboard the *North American* I was stunned to learn of the fate that befell that palatial Canadian liner which I had seen only a few days previously, and had sailed on several times in past years.

In 1950 came the dawn of a revolutionary era in Great Lakes cruising. "Mommie" and "Daddy" decided to find out what a new generation thought of life at sea. Since traveling with four little encumbrances could turn out to be anything from most delightful to positively horrible, it was agreed that this cruise would be of short duration. Egged on by the urgings of our very good friend Bert Dowling, of Youngstown, Ohio, whom we had met previously in 1946 on the *North American*, we planned to join him aboard that sleek white liner in Detroit and share the Lake Erie portion of his cruise, children and all. Reservations were made only a few days before sailing time, so two standard staterooms

had to do for Mommie, Daddy, Tommy, age 7, Jimmy, age 5½, Patty, age 4½ and Wally, age 2. We had our misgivings, but the die was cast, and when the *North American* arrived in Detroit from Chicago with our good friend, Bert, aboard, we were there, lined up on the dock to greet and join him, all six of us, down to little Wally on a leash! Bert had evidently done a superb job of preparing his fellow passengers for the invasion to come, for we were given a rousing welcome from the passengers and crew. Locating our accommodations, we found that if half of us stayed in bed while the other half was standing in a stateroom, we could get the door shut. Of course, having two staterooms alleviated this condition for the most part, though there was constant skirmishing among the small fry to see who would get to sleep "on top."

After getting luggage, teddy-bears, dolls and diapers dumped into our "spacious accommodations" we were all on deck lined up at the rail when the ship sailed from Detroit. With a blast of the whistle, little Wally made the fastest ascent to his Daddy's neck ever known for a two-year old. But once underway, everything was fine and four little pairs of eyes grew as big as saucers as the *North American* headed down the Detroit River. The little ones were fascinated with the passing parade of freighters and the ever-changing panorama of the shore line. In Buffalo, we dispensed with the usual trip to Niagara Falls in favor of a luncheon party at the Statler Hotel which was much to the children's liking including horns, balloons and animal crackers. Since dinner was not served aboard ship that evening in Buffalo, we stopped at a delicatessen for the makings of a picnic supper which we held on the top deck of the *North American*. When at last we gathered up the remains and started down toward the promenade deck to join in the festivities of sailing time, little Wally was found to be busily engaged in washing the windows of the pilot house with what was left of his cheese sandwich!

Our friend, Bert Dowling, left us at Cleveland the next morning, most reluctantly, while we stayed aboard for the run back to Detroit. By this time the little ones had acquired a wonderful set of sea legs. They were also immensely interested in the big ship and what made her go. So, there ensued a tour of the engine room, and every other nook and cranny that little boys and girls could squeeze into. That afternoon, steaming

back up the Detroit River, a children's party was held aboard the *North American*, which concluded with sundaes at the soda fountain.

Came Detroit, and our cruise had to end, a cruise that was far different from anything previously experienced. Despite the four little encumbrances, Daddy and Mommie had had a marvelous time, and the little ones were loath to leave the big boat which had to go away without them. Of course, we had to promise that there would be a next time, for they had all had such a good time.

Thus concludes a tale of Great Lakes cruising for one family that has now encompassed three generations. To many people, such cruises are merely a vacation to be experienced once, then on to other places and resorts in an endless search for variety and excitement. To still others a lake cruise is positively inane after such luxuries as a transatlantic crossing or a Mediterranean sojourn. For them it matters not if the Great Lakes passenger trade dwindles until the lake liners are no more, and only power boats or private yachts remain to sail the waters of American history. But there are those of us who love the lakes for what they are, and for the tremendous part they played in the development of the American heritage that was nurtured through their exploitation. There are those of us who, year after year, hear the irresistible call of the inland seas, and, asking for no more than a berth to sleep in and a hook to hang our hat on for the short time that we are aboard one of the lake liners, feel that we are sailing the paths of American history and living amidst the legends of freshwater.

St. Lawrence Steamboat Days

By FREDERICK C. CURRY

STEAM NAVIGATION ON THE ST. LAWRENCE RIVER followed very closely on Robert Fulton's invention. In 1809 just two years after the *Clermont* made her first trip on the Hudson river, a Canadian steamer, the *Accommodation* ran from Montreal to Quebec. It was fourteen more years before the first steamboat was built on Lake Ontario. This was the *Frontenac* launched at Finkle's Point near Bath, a few miles west of Kingston, on September 7, 1816 a year ahead of her American rival the *Ontario*, launched at Sackett's Harbour early in 1817. A comparison of the two boats is interesting. The *Frontenac* was 170 feet long and 700 tons gross while the *Ontario* was only 110 feet long and 24 feet beam and rated at 237 tons. The latter ship tried weekly trips from Ogdensburg to Lewiston but finding this distance, 600 miles, too much for her speed, which seldom exceeded 5 miles per hour, the frequency was changed to ten days. She continued to run till 1832 when she was broken up at Oswego. The *Frontenac* ran from Prescott to York until 1837 when she in turn was broken up.

By this time there were numerous steamers plying the river between Prescott and Lake Ontario which is the region this sketch attempts to cover. Some became famous or notorious, according to one's national or political leanings. For example, the *United States*, built in Ogdensburg in 1831 at a cost of \$56,000, became so unpopular with Canadians as a result of her part in the Battle of the Windmill in 1838 that she was withdrawn from service on this part of the river.

But we are getting ahead of our story. There was for example the *Robert Peel* built at Brockville at a cost of \$44,000 and burned to the water's edge the year before by the self styled "Admiral of the 1000 Islands" the notorious Bill Johnston, during the so called Patriot War of

1837. Bill also took part in the attempt to capture Prescott which has been dignified with the title of the "Battle of the Windmill," but only a minor part, for he was in command of a schooner which he stranded on a bar in Ogdensburg harbour. Then he became stranded himself on another kind of bar in Ogdensburg itself while the invasion continued without him. No picture of the *Robert Peel* seems to exist, but the contemporary steamers that took part in the battle, the *Cobourg*, *Experiment* and *Victoria* seem to have abandoned the tall masts and yards of sailing rig and developed full length deck cabins and two tall funnels. The burning of the *Peel* was said to have been in revenge for the destruction of the *Caroline* at Niagara the year before. However, we are not concerned with political implications but rather with the development of vessels employed on the river.

In 1813 a steamboat the *Swiftsure* was running between Montreal and Quebec City in twenty-two hours; and in 1820 the Kingston *Chronicle* announced the arrival of the *Dalhousie*, built at Prescott and making seven miles an hour with a twenty horse power engine of local make. In the rapids section of the river progress was slower. The *Neptune* ran between Cornwall and Coteau from 1828 to 1840 and even tried to ascend the Long Sault rapids, narrowly escaping being capsized. The *Iroquois*, fitted with a stern wheel like the Mississippi steamers, ran between Prescott and Dickinson Landing (above the Long Sault) as early as 1830, apparently being able to ascend the Rapid Plat and the Galops. And in 1848, after the opening of the Cornwall canal, which permitted vessels to by-pass the Long Sault, the steamer *George Frederic* successfully ran the twelve miles of this turbulent rapid in twenty-five minutes.

These were the days when the town of Brockville, my present home, flourished. The Grand Trunk Railway had completed its line from Montreal to this town in 1854 and there was a gap of 100 miles to Belleville where the line for Toronto ended. Between the two stretches of railroad a line of steamships plied and as they carried the mail, became known as the "mailboats," a term that lasted long after they ceased to function as such. A tunnel under Brockville enabled another railway to bring lumber and other products of the Ottawa valley to the St. Lawrence for shipment eastward, and a picture map published in 1874 shows

not only all this activity but also a tugboat with two schooners in tow, the tugboat being evidently a propeller.

These tows of two or three snub-nosed schooners filled with coal were a common sight along the waterfront when I was a boy and we knew them as familiarly as the schoolboy of today knows the new cars on the street. One line in particular was so famous for its decrepit vessels that a story was current that the owner, meeting in Ogdensburg one of his captains gloriously drunk and heading for his ship, stopped to reprimand him. But the captain was at the stage when truths come out and answered, "By Gar, Mr. -----, you don't think I sail in your boat if I'm sober?"

At that time there were still occasional rafts of timber going down the river and one of my earliest memories of "boating" was of my father suddenly appearing during business hours and snatching me almost from my mother's arms to place me as ballast in the bow of his canoe and paddle out to meet a raft that he had heard, by the grape vine route, was coming down the river. Being a powerful paddler we were soon alongside and while he chatted with old friends among the river drivers the crew fed me, literally *ad nauseam*, so that the first thing I did on being restored to my mother was to lose my lunch. Then we were both in the dog-house! But it was an opportunity that never came again. I was a bit older before I took to steam. The occasion was a trip to Toronto with my mother and for some reason we took ship at Kingston on the *Corsican*, one of the old Richelieu & Ontario Line. I believe we followed the old route along the north shore of the lake by way of the Bay of Quinte and the Murray Canal as this territory seemed vaguely familiar to me when I traversed it again many years later. I was only a small boy and the high light of the trip was a military funeral in Toronto of a Major Mutton. My mother's people being military turned out en masse to see "Uncle Joe's" regiment burying their second in command. It was a cold October day and as the casket passed by a callous bystander remarked that it was "pretty cold mutton."

These were the halcyon days of steamboating on the St. Lawrence.

The R. & O. Line had at least two other steamers operating on the Toronto-Montreal route that I have described. These were the *Bohemian* and the *Algerian*. They ran all the rapids between Prescott and Montreal,

returning by the canals. There were also a number of propellers carrying package freight and passengers between Hamilton and Montreal, such as the *Ocean*, *Persia*, *Dundurn* and *City of Hamilton*. These were high unwieldy vessels and being too great a draught to navigate the rapids travelled the canals, yet seemed to have no lack of passengers, possibly timid souls to whom the rapids did not appeal.

Among local ships was the car ferry *W. H. Armstrong* which connected the railways at Brockville with the Rome, Watertown and Ogdensburg line at Morristown, New York. She filled once owing to improper loading and sank in 80 feet of water with the loss of one life, that of an agent for the New York Central Railway, but was raised and continued in service for many years. The Thousand Island Steamboat Company operated three steamers between Kingston and Ogdensburg, the *America*, *Empire State* and *St. Lawrence*. They carried orchestras on board and were equipped with the recently invented searchlight, so became very popular for moonlight cruises among the islands. This line was afterwards bought by the Folgers of Kingston.

Out of Alexandria Bay, then in the height of its fame as a summer resort, ran two fast propellers, the *New Island Wanderer* and *Island Belle*, making daily trips between Clayton and Ogdensburg, the vessels passing each other near Brockville. So successful were they that a third was added, the *Massena*. She continued on this route till 1903 when she was destroyed by lightning at Ogdensburg. They were owned then by Holmes Bros. of that city. Another vessel made a short appearance on this route, the *Unique*. She was very narrow and fast but heeled dangerously on sharp turns and so was not popular when her captain demonstrated her abilities by unnecessary evolutions. I believe she afterwards overturned in the Grass River with an excursion on board.

Not to be outdone Brockville people built a vessel of similar type, named the *Brockville*, after their town, which served the needs of the cottagers on the north shore of the river and enabled them to commute to their work. She also ran moonlight excursions to Alexandria Bay when the islands were a veritable fairyland as each cottager vied with his neighbour in outlining his home in colored electric lights. Other favorite trips were down the rapids to Sheek's Island just above Cornwall where a magnificent view of the Long Sault could be had, or by

way of Kingston and the Rideau Canal to Westport, the terminus of the Brockville & Westport Railway. Here the vessel discharged her passengers, who returned by rail, while she picked up another load of those who had made the trip out by railway.

The propellers were fast driving the paddle boats off the river because being easier handled they could navigate such narrow passages among the islands as the "Lost Channel" and the "Fiddler's Elbow." Up to this time the paddle steamers had all been of the walking beam type with vertical cylinders and usually with low pressure boilers. Their general design was that of the *Rothsaj*, who won short fame by colliding with the tug *Myra* near Prescott and foundering.

In 1899 the Richelieu & Ontario line (later the Canada Steamship Company) launched a new vessel at Toronto which they named after that city. The *Toronto* was the first three-decked cabin boat on the river and was fitted with horizontal engines and feathering paddle-wheels which gave her a speed of twenty miles an hour. She ran on a new route crossing the lake from Toronto to Charlotte and then back to Kingston, Ontario and on through the islands, calling at Alexandria Bay, Brockville and Prescott. In 1906 she broke the record established by the *Northerner* in 1850 by running from the Bay to Brockville in 68 minutes, the *Northerner's* time for the 24 mile run being 72 minutes. So successful was she that in 1901 a sister ship the *Kingston* was launched. She was ten feet longer and had thirty more staterooms, being a twin funnel vessel but the funnels were fore and aft instead of abeam as had been the custom on the older boats.

Daily service was established between Toronto and Brockville where passengers were transferred to the *Rapids Prince*, an equally luxurious propeller which ran all the rapids between Prescott and Montreal, returning by the canals. In some parts of the river, between the rapids, this vessel attained a speed of thirty-five miles an hour, as accurately as could be checked by driving alongside in a car. At Montreal another transfer was available to those wishing to travel to Quebec or the Saguenay River. This was travel de luxe and soon rivalled Niagara Falls as a honeymoon journey.

In 1937 owing to failing traffic, for which the motor car was mostly to blame, the *Toronto* was withdrawn and a tri-weekly service main-

tained by the *Kingston* until 1950 when following the terrible *Noronic* disaster a decision had to be made to remodel at great expense or build a new vessel. Neither course was followed and she too was headed for the wreckers, thus ending a full century of passenger service on the river.

Appropriately enough the new postage stamp issued this year by the Canadian Postal Service to commemorate their centenary, shows one of the early paddle steamers, the *City of Toronto*, and on the paddle-box can be read, with a magnifier, the proud title *Royal Mail Boat*.

Another steamer with a long record on this part of the river was the *Britannic* of the Montreal & Cornwall Navigation Company. Built in Scotland in 1868 as the tug *Rocket* for the Allan Line, her 150 foot iron hull was equipped with a double walking beam engine to combat the heavy currents encountered in towing schooners up the lower St. Lawrence. In 1892 she was converted to a private yacht for the owner and one engine removed and in 1898, after another conversion to a cabin passenger vessel, was sold and ran between Montreal and Cornwall. Later she was sold to Collingwood interests and ran between that port and Owen Sound as the *Britannic of Collingwood*. Then in 1909 she was brought down from the Upper Lakes and put on the Montreal-Kingston run, making a weekly trip that gave Montreallers a five day cruise for the modest sum of \$25, a bargain even in those days as the meals and accommodations while plain were good.

From Brockville the *Britannic* ran a Friday excursion to Kingston that was very popular and the owner being unable to find a local agent persuaded my father, an old friend of his, to act in this capacity. So I found myself, as junior apprentice in the drug-store, on the dock each week with a handful of tickets to sell. It had its reward both in commissions and the friendships I made among the crew and passengers, many of whom took the trip year after year, and I had the run of the boat. She was the last walking-beam vessel to run out of this port and her low pressure cylinder, about 30 inches in diameter and nearly six feet tall was an impressive sight. According to her engineer she could run as soon as the water was hot enough to shave with, and she had no reverse gear. To achieve this result the paddlewheel had to be stopped on dead centre and a steel lever set in a hole through the shaft that worked the valves. This was then turned and steam readmitted so that the wheel

began to revolve in the opposite direction. A tedious operation and the cause of much profanity when, as sometimes happened, the mate muffed a landing and called for too many reverses on the "pip" whistle that took the place of an engine bell or telegraph. There were other times when the purser and I sat on each side of the chief to make sure he interpreted the bells properly and to prod him into taking action. There seemed to be a constant war between the engine-room and the deck and a lot of fluent but untranslatable French flowed up and down the open space through which the piston operated the walking-beam.

These happy days were interrupted, first by my wandering off to college and later by the outbreak of war in 1914.

On my way up and down to college I used to see the derelict hull of the old Knapp Roller Boat in Ashbridge's Bay, now a part of Fleet Street, Toronto. This vessel, perhaps the oddest that ever floated on the broad St. Lawrence, looked like nothing so much as an oversized ship's boiler lying half out of the water.

This vessel, the first patents for which were issued in 1898, was the invention of a Prescott lawyer who hoped to achieve the speed of 100 miles an hour by rolling over the surface of the water instead of plowing through it in the conventional manner. So he obtained his patent and sold enough stock to build a full sized model. The hull consisted of a double walled cylinder with truncated ends provided with longitudinal fins making it an elongated paddlewheel. The cargo, crew, and engine occupied a platform inside this cylinder and by means of gears working on the squirrel-cage principle the hull was made to revolve and roll through the water. Smoke pipes issued from the ends of the hull but how the affair was steered defies the writer's memory. The vessel only made two trips, once across the river to Ogdensburg and the other to Brockville. Neither was a success, for on the first occasion the craft rolled up on the sandbar in Ogdensburg harbour and had to be towed off and on the second (a year later, September 24, 1902) the vessel took so long appearing that most of the crowd awaiting her arrival at Brockville dispersed.

I was barely back from college when the First World War broke out and as I was a member of the reserve army I was not surprised to find myself on the bridge of the Donaldson Line *Cassandra* when she pulled

out of Quebec on September 22, 1914 as the signalling officer of the 2nd Battalion East Ontario Regiment. We slid silently down the river by night, the searchlights from the forts following us like the streamers thrown to passenger vessels on happier sailings, but there were no bands and no music.

It was nearly two years later when I made a return trip up the St. Lawrence, this time in charge of two hundred wounded men being sent home. I had been wounded myself but was on furlough and had "worked my ticket" to get this appointment so that I could visit my home. There was great activity on the river but passenger business had fallen to a new low and package freight was more important. Strange sights were seen on the river such as vessels cut in half to pass down the canals, the halves to be reunited at Sorel or some other shipyard. This method of getting oversized freighters out to the Atlantic was also followed in the last war.

When the war ended I resumed my task as the *Britannic's* agent and made frequent trips on her to Kingston and Montreal. The purser like myself was a veteran and we formed a friendship that outlasted the vessel. She passed up the river to be wrecked in 1938 and may have travelled to China or Japan as scrap. In which case she may have figured in the naval war, a sad ending for a ship with so many happy memories.

The *Noronic* tragedy definitely ended steamboating on the St. Lawrence. It seemed hardly believable that this fine vessel, which had made trips down our way in 1932 and '33 could possibly have burned so completely. It is doubtful if the gasoline propelled tour boats that now dot the river are any safer, though we have had no tragedies as yet in spite of the many instances of cabin-cruisers exploding or taking fire.

But the river is still a great highway. Strange vessels have passed our doors; a German submarine, the replica of the *Santa Maria*, the convict ship, *Success*, Admiral Byrd's *City of New York* and others on their way to and from Chicago, in the years between 1918 and 1939. Today our chief interest is in the smart Dutch and Norwegian vessels such as those of the Fjell Line. Ships change but truly Old Man River just keeps rollin' along.



GREAT LAKES CALENDAR

By BERTRAM B. LEWIS



JULY, 1951

The coast guard issued 53 citations against Great Lakes vessel companies charging them with operating vessels at excessive speeds in the St. Mary's River. The citations were issued after owners of riverside property had protested against damage allegedly resulting from the wash of steamers in the river, which was at its highest level in many years.

JULY, 1951

The Swedish American Line's sleek, new motorship *Torsholm* paid her first visit to Cleveland to load part of the big new power plant being shipped by the Babcock & Wilcox Company of Barberton to Denmark. The all-white, 258-foot freighter, manned by an all-Swedish crew of 28, had incorporated the latest developments in shipbuilding.

JULY, 1951

Name of the freighter *Fred G. Hartwell*, flagship of the 13-vessel M. A. Hanna Company fleet, was changed to the *Matthew Andrews*, in honor of the man who was chairman of the Hanna organization from 1922 until his death in 1929. The *Andrews*, built in Lorain in 1923, had broken many cargo records in her 28-year career.

JULY, 1951

The Pioneer Steamship Company announced that its new 640-foot ore carrier being built at Bay City, Michigan would be named in honor of the late Captain Charles L. Hutchinson, who had founded the shipping concern 51 years before. The present steamer bearing the Captain's name was changed to the *Gene C. Hutchinson*, in honor of the Captain's son who is a partner in Hutchinson & Company.

JULY, 1951

Complaints of owners of property on the banks of the St. Mary's River, relative to damage caused by the wash of ships, caused the Coast Guard to limit the speed of vessels of over 50 gross tons between Little Rapids Cut and Six Mile Point to seven and a half miles an hour.

JULY, 1951

The Norwegian motorship *Veslefjell* arrived in Cleveland on her maiden voyage with 825,000 pounds of Belgian steel and miscellaneous cargo from London, Antwerp and Rotterdam.

AUGUST, 1951

A new shipping service between the Mediterranean and the Great Lakes was inaugurated when the 258-foot Norwegian steamer *Kollbryn* arrived at Detroit with 150 barrels of olives from Spain and Portugal, 125 cases of vintage wines from Marseilles and other products.

AUGUST, 1951

The new tug *Salutation*, with a pilot house which could be lowered to allow her to pass under low bridges, appeared on the Great Lakes. She was believed to be the first craft in shipping history built with a pilot house raised and lowered by means of a pneumatic controlled hydraulic lift. The tug, owned by the James McWilliams Blue Line of New York, was 89 feet long and powered by a 1,200 horsepower Diesel engine. The forward part of the deckhouse had double sides, the pilot house proper fitting into the walls of the outer housing and being lowered and raised by a lift fitted below the pilot house floor. When the ship approached a low bridge the wheelsman pulled a lever and the house dropped until its roof was level with that of the deckhouse roof. Simultaneously the two masts folded over on hinges. After passing safely under the bridge the pilot house and masts were raised. The ship was built by the Livingston shipyard of Orange, Texas, on a plan originated by George W. Codrington, vice-president of the General Motors Corporation and general manager of its Cleveland Diesel Engine Division.

AUGUST, 1951

The steamer *Coverdale*, co-queen with the *Hochelaga*, of the large fleet of Canada Steamship Lines, Ltd., established a fleet record for moving iron ore. She carried 18,330 tons of it from Duluth to Ashtabula.

AUGUST, 1951

The Marmortan Company, a subsidiary of the Bethlehem Steel Company, was getting ready to develop iron ore deposits at Marmora, Ontario, whose existence had been known for more than a century. The mining operation was expected to employ 225 men and involve expenditures running into the millions. Ore docks were to be built on the shore of Lake Ontario. Iron ore was mined in the Marmora district as early as 1820, but the deposits were abandoned when richer ore was discovered in the Mesabi.

AUGUST, 1951

A precedent was set by the United States Congress when it passed a bill authorizing Canadian ships to carry grain between United States ports in the remaining months of the year. Both Canadian and American interests had been calling for more bottoms to haul grain from upper lake elevators to the lower lakes. American shipping interests opposed the measure.

AUGUST, 1951

The Lake Carriers' Association, which had occupied office quarters on the ninth floor of Cleveland's Rockefeller Building for 27 years, moved to new quarters on the third floor.

AUGUST, 1951

The motorship *Erie Isle* was launched at the Cleveland yard of the Rud Machine Company on the Cuyahoga River and was to enter service between Port Clinton, Put-In-Bay and Middle Bass Island in Lake Erie. The 64-foot ship was powered by two Diesel engines with a total of 400 horsepower and would carry 50 passengers and five automobiles.

AUGUST, 1951

The steamer *Scott Misener* cleared Fort William with the largest cargo of wheat ever floated on the Great Lakes. She carried 660,056 bushels and 20 pounds to Midland, Ontario, surpassing her previous record by almost 9,000 bushels.

AUGUST, 1951

Roy Wilfred Milner, Canadian grain authority, was appointed Canada's first peacetime transport controller, with power to break contracts and re-direct bulk carrying traffic on the country's waterways and rail lines. He also would have control over all storage elevators and terminals normally used in the shipment of bulk commodities.

SEPTEMBER, 1951

The Pittsburgh Steamship Company announced that its three bulk freighters under construction on the Great Lakes would be named in honor of directors of the parent concern, the United States Steel Corporation. The men thus honored were Philip R. Clarke, Arthur M. Anderson and Cason J. Calloway. The Bradley Transportation Company, another U. S. Steel subsidiary, disclosed that its 666-foot self-unloading vessel, whose 72-foot beam would make her the widest cargo carrier on the Great Lakes, would be christened the *John G. Munson*, in honor of the retired vice-president of the U. S. Steel Corporation of Delaware. The Bradley ship already bearing Munson's name was to be rechristened the *Irvin L. Clymer*, in honor of Bradley's president.

SEPTEMBER, 1951

Names of two other freighters being built were announced by the Interlake Steamship Company. The company's flagship, under way at Sparrow's Point, Maryland, was to be christened the *Elton Hoyt II*, for Interlake's president and the senior partner of Pickands, Mather & Company, operating managers of Interlake. The other ship, under construction at River Rouge, Michigan, was to be named for J. L. Mauthe, president of the Youngstown Sheet & Tube Company. The steamer already carrying Hoyt's name was to be renamed, the *Alex D. Chisholm*, for P. M.'s resident partner at Duluth.

SEPTEMBER, 1951

The Inland steamer *Wilfred Sykes* established another iron ore cargo record when she loaded 20,406 gross tons (bill of lading weight) for Indiana Harbor, breaking her own record of 20,371 tons set in July.

SEPTEMBER, 1951

Plans for repowering six bulk freighters and two self-unloaders during the winter were announced. The ships to be improved were the bulk vessels *Schoonmaker* and *Shenango* (Shenango fleet), *Kendrick* and *C. A. Paul* (Wilson), *P. D. Block* (Inland), *Amasa Stone* (Interlake) and the self-unloaders *J. S. Ashley* (Pioneer) and *Charles C. West* (Reiss). This would bring the number of American lake freighters repowered since 1945 to 22.

SEPTEMBER, 1951

United States army engineers decided on a dredging program revolutionary to the Great Lakes. To expedite passage of steamers up the Cuyahoga River early in the spring of 1952 they announced plans for dredging the channel near the head of navigation five feet deeper than ordinarily, with the hope that a larger portion of the sediment which regularly accumulates over the winter would collect in the deeper area. The five feet of sediment deposited in winter usually prevented use by ships of the upper river until dredges, often hampered by bad weather, were able to complete their work in late spring.

SEPTEMBER, 1951

Buffalo resumed its efforts to remedy the situation which almost annually found it the latest Great Lakes port to be opened to navigation. Congressman John C. Butler introduced a bill urging that an icebreaker be berthed at the Buffalo coast guard station for the purpose of breaking up the spring ice. The ice-fighting *Mackinaw* was usually too busy in northern waters to help out at Buffalo. Ice blown to the east end of Lake Erie had kept the port ice-locked as late as May 24.

Recent Gifts to GLHS

Since the Society was organized it has been the recipient of many gifts of books, pictures and Marine association items pertaining to the Great Lakes. Some of these gifts have been mentioned in INLAND SEAS. To let our members know what is being received and to show our appreciation to the donors we shall in the future list all gifts in these pages.

—THE EDITOR.

Picture. The *St. Magnus* overturned in the Cuyahoga River. From O. H. Bonner.

Album of photographs of the *Cliffs Victory*. From Alva Bradley.

Photographs (25). Great Lakes Ships and the Detroit lake front. From Carl McDow.

Autographed book. Harry H. Ross, *Enchanting Isles of Erie*, 1948. From A. B. Mack.

Etchings (2). Lake views. From Mrs. Elsie M. Martindale.

Directory. Shipmasters Association, 1950. From Captain John C. Murray.

Rare book. *Life on the Lakes*, N. Y. 1836. (2 vols.) From Baird Tewkesbury.

NOTES

The Benjamin F. Wade

AT ONE TIME the steamer *Benjamin F. Wade* was sailed by Captain L. B. Goldsmith of Conneaut. A short time ago, one of our contributors and early members, Charles J. Dow, came across a silver pitcher, which is in the hands of the Goldsmith family in Conneaut. It is a token of appreciation given to Captain Goldsmith by passengers on a trip made by them during the Civil War. The engraving, beautifully done, bears the following tribute:

Presented to

Captain L. B. Goldsmith, of the Steamer *B. F. Wade*, by New England Teachers and others, in testimony to his kind and gentlemanly attentions, while on an excursion for the National Teachers Convention at Chicago. August 1st, 1863.

The pitcher, sturdy and attractive, is ten inches high with a covered top. In raised work entirely around the bowl, a sailing vessel, under full sail, may be seen,

passing a village. Then there is another relic from the days of Captain Goldsmith, a silver snuff box, the lid of which bears this inscription:

L. B. Goldsmith
Master of the
"Progress"

From his friends and shipmates.

Ernest Vandyke, Pilot
F. J. Baumgartner, Asst. Pilot
August 27th, 1884

Mr. Dow writes: "The inquiry I wish to stir up concerns the motive power of the *B. F. Wade*. The Goldsmith family has told me that she had both paddle-wheels and propeller for movement, it being their opinion that she was the only vessel so powered ever to sail the Great Lakes. Now that I have touched off the match, let's get a little fire kindled and try to run this rumor down. If ever constructed along those lines, she evidently did not set a pattern for future stand-ards."

Replica of Adam E. Cornelius Made in Essexville*

OVER AT THE BANK in Essexville quiet-spoken Hubert Ames applies himself to his profession by day, giving the community through the bank he represents, a service it appreciates.

When day is done and the books bal-

anced to the penny Mr. Ames betakes himself to his home and his hobby—the study of lake boats, old freight trains—anything it appears that smacks of the water or land, pertaining to navigation or locomotion.

The story rivals the Arabian Nights in interest and it is small wonder that these hobbyists go far afield once their interest is aroused.

The *Humphrey*, now named the *Adam E. Cornelius*, was towed to Sturgeon Bay, Wisconsin, and another half million dollars expended on it, putting it into its original condition and is valued now at more than a million dollars. It is now in active service on the lakes.

He pores over such publications as *INLAND SEAS*, a Great Lakes Historical Society publication. He does not confine his reading and research to one publication. He buys old books, ruminates around in libraries and when he takes a trip may be found in second hand stores where he hopes to find old books on his hobby. Interesting chap, this banker Ames.

Well sir, he ran into a "Kindred spirit" recently in the person of Dr. Harry Hawley, Essexville chiropractor. In addition to Mr. Ames' academic interest in the subjects named the doctor possesses rare mechanical skill. This the banker recognized and the doctor accepted the challenge to build a replica of a boat originally named the *Humphrey*.

The *Humphrey* was a 600 foot freighter which sank on June 15, 1943, in 77 feet of water in the Straits of Mackinac one and one half miles north east of Mackinac City twenty minutes after it collided with the 600 foot *D. M. Clemson*.

An interesting side-line: The *Humphrey* was raised by one Captain Roen who accomplished this feat — the first one on record at a cost of over \$259,000. He started operations one year after the vessel sank and completed the task the summer of 1945, having started the project in the fall of 1944.

We are not clear on all the details covered before Dr. Hawley accepted the task of making a 37" working model of it for Mr. Ames. Presumably he must have had a picture of the *Humphrey* as it appeared originally and his research into its dimensions must have yielded some statistics for he has a working model of it nearly completed after more than 300 hours of patient effort.

The boat itself is to be on display at the bank for the enjoyment of all who admire precision mechanics and maritime lore.

Dr. Hawley collaborated as procurement officer for the project and it was not an easy task, some of the parts being almost as small as found in watches and very difficult to buy. The doctor has spent all his spare time now for weeks, on the project. One very delightful outcome of the whole thing has been the development of a fine friendship between the two men who previously knew each other only incidentally.

Maybe we would all benefit from the adoption of a hobby such as these two gentlemen have made theirs.

Mr. Ames likes to get hold of old pictures and put them on display in the bank. It is interesting to observe from week to week his "finds," which he displays with the enthusiasm of a real collector. Anyone having an old picture may find pleasure at seeing Mr. Ames put on a smile, not always seen in banks, when he receives the loan of a picture. He takes expert care of what is thus loaned to him and the owner may be perfectly sure it will be returned in the condition it was when brought to the bank.

The *Cornelius* docks at Essexville throughout the navigation season and has been seen by many of our citizens.

* Reprinted from the *Weekly Herald*, Essexville, Michigan, March 1, 1951. Mr. Ames is a member of the *Great Lakes Historical Society*. See also *INLAND SEAS*, vol. 1, no. 1, pp. 18-30, *Recovery of the Steamer Humphrey* by Jewell R. Dean.

Frank E. Kirby

THE BURTON HISTORICAL COLLECTION of the Detroit Public Library recently purchased some business record-books of the well-known marine engineer, Frank E. Kirby. Mr. Kirby was born in Cleveland, Ohio, July 1, 1849; and after graduation from Cooper Institute and experience in the East, settled in Detroit. He built the Wyandotte shipyard for Eber Brock Ward; was associated with the Detroit Dry Dock Company, the Detroit Ship Building Company, and others. He was the designer of over 150 ships on the Great Lakes, including ferries and ice-breakers, 10 of the latter for the Russian government. He invented a non-sinkable life boat; superintended various United States craft for the Spanish-American War; was in charge of the construction of Ford's "Eagles" during World War I; and was consultant of the Submarine

Boat Corporation of New York. He died in Bronxville, N. Y., August 23, 1929.

The Curator of Manuscripts in the Collection, Miss Louise Rau, has made the following analysis of the papers: "The manuscripts include 3 letter-books, 1891-1910, on Kirby's work as a marine engineer; 3 memorandum books which give specifications for fresh and salt-water vessels and steam engines; and 3 scrapbooks containing clippings about marine machinery, specifications for ships, and notices of shipwrecks. A ledger of the Detroit Dry Dock Company, 1889-99, lists costs and specifications for various vessels. The collection also includes 2 letter-books of Capt. Thomas Scott Fillebrown on board the U. S. Flagship, *Powhatan*, 1877-79. How these came to be a part of the Kirby records is not known."

—ELLEINE H. STONES

Grand Portage National Historic Site

A GREAT LAKES AREA less visited than it should be, will probably receive more attention in the future. Grand Portage, on the Minnesota coast of Lake Superior, a nine-mile wilderness trail trodden by 18th century French explorers and fur traders, has now been declared a national historic site. The dedication ceremonies took place on August 9th, under the auspices of the Minnesota Historical Society.

Grand Portage was a gateway in the early wilderness country. Known to have been crossed by French explorers on their way between Lake Superior and the Pigeon River as early as 1731, it was undoubtedly used by the Indians long before that.

While the portage lies entirely within the boundaries of Minnesota, it is close to the Canada line. It was appropriate, therefore, that Premier Leslie M. Frost of Ontario participated in the ceremonies along with representatives of the Interior Department. Even more fittingly, representatives of the Chippewa tribes took part, exchanging solemn agreements with the federal government.

This is still wilderness country in the Quetico-Superior region, a land of woods and many lakes. Every effort will be made to preserve its distinctive quality. Visitors to Minnesota will be rewarded if they manage to include a trip to the new historic site in their itinerary.

—G. W. T.

The Mohawk

H. M. S. Mohawk, an armed frigate, was stationed at Penetanguishene, on Georgian Bay, between 1848 and 1852. She was an iron-hulled sidewheeler of 174 tons and her armament consisted of two 24-pounders. Her commander was Lieutenant Frederick Charles Herbert, who was born in 1819, entered the Royal Navy College in 1831, rose to midshipman in 1839, lieutenant in 1844 and commander in 1856. He died in 1868. In 1852 he was succeeded in command of the *Mohawk* by Lieutenant Tyson.

During the time that he was at Penetanguishene Lieutenant Herbert did not occupy his quarters on the frigate but as Commander of the Penetanguishene Naval Establishment he lived in the commodious log house formerly occupied by Captain John Moberly, R.N. which stood on the slope of the hill just above the naval depot. The location may be identified today by the small dock jutting out from the bay-shore just east of Magazine Island. At some time before 1856 the house was burned and a soldier lost his life in the fire.

H. M. S. Mohawk was built at the Kingston Naval Dockyard and launched on February 21, 1843. She was the first iron-hulled warship on the Great Lakes. Her gun-deck length was 99 feet, extreme beam 19 feet, 6 inches, depth of hold 9 feet, 10 inches. She carried as a figurehead the bust of a Mohawk chief. There is a pen and ink sketch of the vessel in the John Ross Robertson collection in the Toronto Public Library. The single funnel was located amidships. There was no walking-beam as the cylinder was inclined and the piston was connected directly to the paddle shaft. Both foremast and mainmast carried sails and the bowsprit was rigged.

Although this warship's tonnage and armament exceeded the limitations of the

Rush-Bagot agreement, it will be remembered that the year 1844 was one of stress and threats of war. A president was to be elected in the United States and the Oregon Boundary dispute with the slogan "Fifty-four forty or fight" was much heard.

The contemporaneous construction of the American 500-ton warship *Michigan* was being carried on openly at Pittsburgh and was assembled after piecemeal transportation and launched at Erie, Pennsylvania, on December 4, 1844. *H. M. S. Cherokee*, 750 tons and 170-foot gundeck, had been built at Kingston Dockyard and launched on September 22, 1842. Notwithstanding the fact that the *Cherokee* and *Mohawk* were stationed on Lake Ontario and *H. M. S. Mimos* at Chippewa, the British government informed Secretary of State Calhoun through the ambassador at Washington that the United States naval force on Lakes Ontario, Erie and Huron exceeded that allowed by the Rush-Bagot agreement of 1817. It was furthermore stated that while it was true that Great Britain had been forced to maintain for her own defense beyond limitations of the agreement it was while Her Majesty's dominions were threatened with invasion from parties unlawfully organized within the United States.

The armament of the *Michigan* was accordingly reduced to one gun, a 32-pounder, in 1845. When the Oregon dispute was at its height the vessel made a return trip from Buffalo to Chicago. Peace came by the Treaty of 1845 and in order to further and maintain goodwill with the United States the British government ordered the *Mohawk* in 1848 to leave Lake Ontario and proceed to peaceful landlocked Penetanguishene where American citizens would not be annoyed by the sight of two 24-pounders protruding from the gun deck.

—W. R. WILLIAMS

Georgian Bay's Grumbling Point

IT BORE the Anglicized name Grumbling Point a half century ago when tugs and their rafts tied up to Tie Island during southerly gales, but is now shown on all maps and charts as Grondine Point, derived from the name *Pointe aux Grondines* bestowed by voyageurs during the French regime in Canada.

Pine-dyed French River, after a drop of fifty-nine feet in fifty miles, rushes through several foaming mouths into three-mile French River Bay until further westward movement is halted by mile-long Grondine Point.

In early days it was a hazard on the historic fur canoe route across Lake Huron but now it is in the most out-of-the-way corner of the Great Lakes. First view of the area created such an impression that a succession of writers mentioned it. The first was the fur trader Alexander Henry who made a trip westward to Fort Mackinac in 1761 on the heels of the British conquest. He wrote:

"On the thirty-first day of August we entered Lake Huron, the waves running high from the south and breaking over numerous rocks. At first I thought the prospect alarming, but the canoes rode on the water with the ease of a sea-bird and my apprehensions ceased.

"We passed *Pointe aux Grondines*, so called from the perpetual noise of the water among the rocks. Many of these rocks are sunken and not without danger when the wind, as at this time, is from the south."

The next description was written by Dr. John J. Bigsby, a British army surgeon who reached Quebec in the spring of 1818. A year later the government ordered him to travel through Upper Canada and make a general report on its geology. In the spring of 1819 he began a trip from Montreal and followed the Ottawa River route via Lake Nipissing and French River

to Georgian Bay. He wrote:

"The weather took up when we crossed French River Bay. This bay is three miles broad and two and a half deep. Its form is regular, the shores low, but high woody ridges present themselves from ten to fifteen miles in the rear. *Pointe aux Grondines* forms the western angle of the bay and is a headland fifteen hundred yards across. Not far hence there is a group of Indian drawings on a smooth cliff."

The next traveller to record impressions was Mrs. Anna Jameson who in August 1837 rounded this point in a canoe. She says:

"We doubled a remarkable cape, mentioned by Alexander Henry as *Pointe aux Grondines*. There is always a heavy swell here and a perpetual sound of breakers on the rocks, whence its name. Only a few years ago a trader in his canoe, with sixteen people, were wrecked and lost on this spot."

Extensive and dangerous shoals lie east and southeast from Grondine Point, the shallowest being Finnis Rock which is awash. Simpson Rock, Draper Island and Hen Island are all less than one mile distant. Shoal water extends from the Point, three-quarters of a mile south towards Grondine Rock, leaving a space of about one-third of a mile through which small craft occasionally pass by keeping close north of the Rock which is fifty yards in diameter and rises over five feet above water.

Immediately east of the Point the shore is broken up into innumerable small islands and is called Indian Bight on account of the neat little Indian village located two miles eastward. East of the village is Voyageur Channel, one of the five mouths of French River, so named because westward bound voyageurs used it in the early days.

—W. R. WILLIAMS

The Great Lakes in Print

An index to magazine articles and notes on the Great Lakes which have appeared in current periodicals not exclusively devoted to the lakes.

American Economic Review, September, 1951, pp. 650-661. Price Determination in the Lake Erie Iron Ore Market, by L. G. Hines.

American Heritage, Fall, 1951, pp. 10-11. Montezuma in Minnesota by Grace Lee Nute. (The story of "General" James Dickson.)

American Society of Civil Engineers, Proceedings, Separate No. 83, August, 1951. 10 pages. Waterway Traffic on the Great Lakes, by John R. Hardin.

British Motor Ship, June, 1951, pp. 95-97. First Werkspoor-Lugt Engined Ship. (The *Prins Frederik Willem*.)

Barrons', August 6, 1951, pp. 9-10. Great Northern: Hauling Iron Ore and Wheat is Profitable Business, by Jerome B. Skalka.

Business Week, August 11, 1951, pp. 148-9. Seaway: with or without U. S.?

October 20, 1951, pp. 165-6. Canada Beats U. S. to Niagara's Power.

Canadian Field-Naturalist, November-December, 1950, pp. 201-207. Breeding Behavior of the Ring-Necked Pheasant on Pelee Island, Ontario, by K. E. Ball.

January-February, 1951, pp. 31-32. Breeding Diving Ducks on Lake St. Clair, Ontario, by H. G. Lumsden.

Canadian Shipping, July, 1951, pp. 21-23, 29. Large Great Lakes Steamship. (The *Scott Misener*.)

Ecology, October, 1951, pp. 608-617. A Small Island Community in Midsummer, by Richard H. Manville. (Little Rogg Island, Lake Huron.)

October, 1951, pp. 662-668. Comparison of Spring Diatom Crops of Western Lake Erie in 1949 and 1950, by J. Verduin.

Engineering and Contract Record, July, 1951, pp. 63-66, 68, 70, 72, 74. The St. Lawrence Waterway, by J. G. G. Kerry.

August, 1951, pp. 56-65. Ontario Hydro Speeds Construction of Great New Niagara Development, by James A. Daly.

Engineering Journal, October, 1951, pp. 957-966. The Saint Lawrence Waterway, A Discussion of the Paper, "The Saint Lawrence Waterway—An All-Canadian and Very Deep Route," by J. G. G. Kerry.

Engineering News-Record, August 23, 1951, p. 112. River of Commerce; How Cleveland is Improving Its Business Artery.

September 6, 1951, pp. 39-40. Ontario Goes After New Niagara Water.

November 1, 1951, p. 43. Cleveland Drinks Lake Erie's Waters Through New \$21-Million System.

Fishing Gazette, August, 1951, pp. 36, 86. The Need for Natural Spawning on the Great Lakes. (Continued from July.)

September, 1951, pp. 66-67. Typical U. S. Commercial Fishing Vessels—Detailed Plans—Great Lakes Tug *Ewig II*.

Fortune, August, 1951, pp. 99-103. Chicago River; the creek that made a city grow.

October, 1951, pp. 83-85. Niagara Power: Business goes over the Falls.

Hydro News, September, 1951, pp. 25, 31. Canada's Press Favors the Seaway.

Geological Society of America, Bulletin, October, 1951, pp. 1223-1262. Glacial Clays in Steep Rock Lake, Ontario, Canada, by Ernst Anteus.

Industry and Welding, May, 1951, pp. 44-6, 48. Repair and Conversion of Heavy Freighters, by J. W. Massenburg and Charles Hutchinson.

Iron Age, August 2, 1951, p. 103. Ore Boats: Launch Greatest Building Program Ever, by B. Taylor.

Marine Engineering and Shipping Review, November, 1951, pp. 58-59. Preventing Accidents on Great Lakes Vessels, by William F. Eckert.

September, 1951, pp. 54-57. Designer Reviews Electric Winches and Windlasses for Lakes Service, by Almon A. Johnson.

October, 1951, pp. 54-55. Tug Fleet Converts to Diesel Power, by Laurence C. Turner. (Great Lakes Towing Co.)

November, 1951, pp. 66-67. Diesel Cranes Speed Up Laker's Cargo Handling. (The W. C. Richardson.)

Military Engineer, September-October, 1951, pp. 371-372. Lake Survey, Experimental Radar Charts.

November-December, 1951, p. 443. Lake Survey, Reproduction of Great Lakes Charts.

Milwaukee Engineering, June, 1951, pp. 8, 16. The Milwaukee Coal Dock Industry, by Martin Burke, Jr., and W. F. Ehmman.

Mine and Quarry Engineering, April 1, 1951, pp. 115-119. Steep Rock Huge Canadian Undertaking.

Mining Engineering, September, 1951, pp. 777-779. Developing Mesabi Ore-bodies Under Lake Beds, by James R. Stuart.

Mining World, October, 1951, pp. 47-50. Iron Ore Beneficiation Expands; Finer Sizes Subject of Study.

October, 1951, pp. 25, 27, 109, 113. Transport Bottleneck on Lakes Will Be Eliminated by Fast New Ore Carriers.

October, 1951, pp. 42-46. The Iron Ore Miners Are Ready.

Mississippi Valley Lumberman, April 20, 1951, pp. 8-9. Wood Waste in the Lake States, by E. L. Demmon.

National Engineer, October, 1951, pp. 15-17, 26. Complete Power Plant Floats, by Joseph M. Hadfield. (The Joseph Medill, fireboat.)

National Safety Council, Transactions—Maritime Industries (v. 16), 1950, pp. 12-15. Great Lakes Safety Practices, by John L. Horton.

Nautical Gazette, September, 1951, pp. 18-20, 22, 24. Another Big Conversion Job by the Maryland Drydock Co. (The Cliffs Victory and the Tom M. Girdler.)

Nebraska University, Abstracts of Doctoral Dissertations, 1949, pp. 70-77. An Analysis of Spring Weather Conditions on East and West Shores of Lake Michigan, by Byron Kurtz Barton.

New York History, July, 1951, pp. 331-336. Journey to Niagara, 1815, by Benjamin Chew Howard; edited by William D. Hoyt.

Northwest Ohio Quarterly, Autumn, 1951, pp. 195-210. The war of 1812 in Northwestern Ohio: the year of victory, by W. M. Heflinger.

Ohio Conservation Bulletin, September, 1951, p. 11. Island Nesting Eagles, by John Ligas. (Green Island, an uninhabited island 2 miles SW of Put-In-Bay has been the nesting site for a pair of American eagles for the past 11 years. Dr. T. H. Langlois was the first to photograph the nest in 1941.)

September, 1951, p. 14. Timber Rattlesnakes on the Erie Islands, by Thomas H. Langlois.

November, 1951, pp. 15, 32. The Mayfly Crop of 1951, by Thomas H. Langlois. (Put-In-Bay Region.)

Petroleum Engineer, July, 1951, p. D-29. Tankers For Interprovincial Service, by Harry Chapin Plummer. (S. S. *Imperial Redwater* and S. S. *Imperial Leduc*.)

Public Utilities Fortnightly, August 2, 1951, pp. 135-146. Canadian Hydro Keeps Pace With Industrial Development, by C. Bassett.

Saturday Evening Post, September 15, 1951, pp. 30-31. Cities of America—Milwaukee, by H. F. Pringle and K. Pringle.

Sewage and Industrial Wastes, December, 1950, pp. 1618-24. Bacterial Survey of Streams and Bathing Beaches at Cleveland, by J. S. Delos.

Ships & Sailing, October, 1951, pp. 25-26. Battle of the Tugs, by James Thomson.

Skillings' Mining Review, August 4, 1951, pp. 1-2. Iron Ore Moving All-Rail

From Lake Superior Region in Increasing Volume, by David N. Skillings.

September 22, 1951, pp. 12-13. Lake Transit Company Has New Automobile Unloading Rig At Duluth Dock.

September 29, 1951, p. 7. All-Rail Movement of Lake Superior Iron Ore Continues.

October 6, 1951, pp. 1, 4-5. E. J. Long-year Reviews His Early Years On The Mesabi.

October 6, 1951, p. 15. Head of The Lakes Getting Into The Oil Business.

October 20, 1951, pp. 1, 6. Taconite Program of Reserve Mining Co. on Eastern Mesabi Culmination of Many Years of Research.

November 10, 1951, pp. 1-2. Mahoning-Shenango Valleys, Old Customer of Lake Iron Ore.

Think, September, 1951, pp. 15, 32. Long Ship on the Great Lakes, by Fairfax Downey.

Timber Producers Association, Bulletin 99:8; 100:8, June-July, 1951. Historical Notes On Michigan's Timber Industry, by W. S. Crowe.

Welding Engineer, September, 1951, pp. 33-35, 50. Making a Ship Grow, by William C. Henzlik. (The *Philip D. Block*.)

Yachting, June, 1951, pp. 38, 84, 86. An Early Mackinac Race, by Whitney Goit.

U. S. Fish and Wildlife Service, *Fishery Bulletin* 60, 1951, pp. 77-95. Decline of the Lake Trout Fishery in Lake Michigan, by Ralph Hile, Paul H. Eschmeyer, and George F. Lunge.

U. S. Fish and Wildlife Service, *Special Scientific Report, Fisheries No. 61*. Sea Lamprey Spawning Runs in the Great Lakes, 1950, by Vernon C. Applegate and Bernard R. Smith.

United States Forest Service, *Lake States Forest Experiment Station, Technical Note* 354, April, 1951. Reducing Wood Waste in the Lake States, by E. L. Demmon.

This Month's Contributors

LT. COL. FREDERICK C. CURRY of Brockville, Ontario is again a welcome contributor. He tells something about his interesting career in his story.

FRANCIS DUNCAN, formerly an instructor at Wayne University now of Falls Church, Virginia, gained permission to use the D & C papers through the courtesy of the Detroit Historical Society, where they are now housed.

CHARLES E. DOW of Conneaut and W. R. WILLIAMS of Penetanguishene are well known to readers of INLAND SEAS for their knowledge of the Great Lakes and their frequent contributions.

BERTRAM B. LEWIS, Marine Editor of the *Plain Dealer*, contributes a story and a book review as well as his regular feature, the GREAT LAKES CALENDAR.

THOMAS D. ODLE of Ann Arbor, Michigan has been at work over two years on his doctoral dissertation *American Grain Trade on the Great Lakes* which begins in this issue.

RALPH G. PLUMB of Manitowoc, Wisconsin, is the author of several books on the Great Lakes and has contributed a number of articles on Great Lakes shipping to INLAND SEAS. He represented GLHS at the recent launching party of the new *John G. Munson* at Manitowoc and distributed information and membership blanks.

MRS. ELLEINE H. STONES is Chief of the Burton Historical Collection, Detroit Public Library and an Advisory Editor of INLAND SEAS.

Among the book reviewers: F. W. D. is Fred W. Dutton, Treasurer of GLHS; A. O. H. is Agnes O. Hansen of the Business Information Bureau of the Cleveland Public Library; B. B. L. is Bertram B. Lewis, Marine Editor of the *Cleveland Plain Dealer*; M. S. M. is Minnie S. Monti, Head of the Order Division, C. P. L.; and G. W. T. is Gordon W. Thayer, Book Review Editor of INLAND SEAS.

Book Reviews

AS THE SAILOR LOVES THE SEA, by Ballard Hadman. New York, Harper & Brothers, 1951. \$3.00.

If you like fishing, if you like boating, or cruising, or any kind of high adventure, this tale will jolt you out of your humdrum existence. Principally, it is an intimate picture of the fishing business and life in Alaska in the islands and surrounding waters between Ketchikan and Sitka. It is also something of a biography of the author, related in racy style, uninhibited and revealing, piquant and pungent. It reads as though it might have been written by an old-time fisherman, but after several pages you suddenly wake up to the discovery that it was written by a woman. But it isn't "womanly" writing. It is salty, authentic, woven with a charm that will captivate and stimulate the reader. Reading one chapter, you will want to sell out everything and dash right off and catch the next plane; then a few pages farther along you will have a grateful sigh for the comfort and convenience which you enjoy at home. The book is strikingly illustrated by the author, who is an artist in her own right.

This, my yachting and fishing friends, and sailors both real and of the rocking-chair variety, this is a real, he-man book that will knock your eye out. I do not recall having read a book, written by man or woman, that stirred me more with its stark realism and intimate homeliness. I hope Mrs. Hadman will do me the personal favor of writing another book some day.

—F. W. D.

WATERWAY TRAFFIC ON THE GREAT LAKES, by John R. Hardin. New York, American Society of Civil Engineers, 1951. (From its *Proceedings*, August, 1951.) \$.50.

The 10 pages of this article contain a good deal of meat. They give the information that would be desired by a person knowing little about the Great Lakes: historical data, activities of the federal government, facts about commerce, and the improvement of harbors and channels. Finally they close with a plea for the construction of the St. Lawrence waterway.

Hardin remarks that timber and pulpwood once formed the original bulk freight traffic on the lakes, then practically disappeared, and now are returning. These products now, however, do not come from the adjoining states, but from Canada and Scandinavia. Package freight is reviving also. There is thus a constant up and down in harbor development, of which Grand Marais, Michigan affords a notable example. In the late '90's Grand Marais handled 160,000 tons of cargo, mainly forest products. When the forests were stripped, the town went into a decline. In 1947 its only shipments were 222 tons of a local catch of fresh fish. Lest the residents become utterly discouraged, they should consider the case of Holland, Michigan, which at one time was nearly as badly off, but in 1947 was well up to its best record, with 240,000 tons of commercial traffic.

—G. W. T.

SAILS AND WHALES, by Harry Allen Chippendale. Boston, Houghton Mifflin Company, 1951. \$3.00.

The 100th anniversary of the publication of the great whaling novel, *Moby Dick*, is appropriately celebrated by the publication of these reminiscences. Captain Chippendale was at sea from 1895 to 1944, most of the time on whaling vessels. He was aground on Kerguelen in the Indian Ocean, more fittingly described by its other name, Desolation Island, where he took part in the killing of a white whale, one of the rarest experiences on the high seas. This adventure will particularly interest readers of *Moby Dick*. He served on hell ships, on leaky vessels which barely managed to make port before going to the bottom, ran the gauntlet of submarines and eluded icebergs, and time and again came within an ace of losing his life. In fact, almost every conceivable type of nautical experience was his.

His career included service on the Great Lakes. He boarded the *Lake Fossil* at Cleveland in May, 1919, and witnessed that year's May Day riot. Then he headed for Montreal, being impressed en route by seeing the helmsman sitting on a high stool, smoking a long black cigar. Well might Captain Chippendale wonder what would have happened to him if he had been aboard an old-time whaler.

His next lake voyage was from Duluth on the *Lake Farrar*. Other boats on which he served were the *Lake Bell*, *Lake Farquhar* and *Wauwatosa*.

Captain Chippendale's book has evoked some controversy. The New Bedford, Massachusetts *Standard-Times* points out some minor errors, which are perhaps sufficiently accounted for by defects in the captain's recollections. This would explain also why he speaks of stopping at Sandusky, Illinois to take on coal.

Lovers of sea adventure will find this exceedingly good reading.

—G. W. T.

THE QUEST OF THE SCHOONER *Argus*; a Voyage to the Banks and Greenland, by Alan Villiers. New York, Charles Scribner's Sons, 1951. \$3.75.

Alan Villiers, who has sailed the seven seas, alone and with company, in sailing craft ranging from a canoe to an Arab dhow, has produced a maritime epic of today. Few people realize that the Portuguese fishing fleet sails yearly to the Grand Banks off Newfoundland and to the Greenland fishing grounds in Davis Straits.

Each year 3,000 Portuguese in sixty vessels spend four to six months hunting the cod. Some of these ships are beam trawlers, but most of them are specially built three and four-masted auxiliary schooners. They have steam heat, electric lights, loud speakers, artificial refrigeration and radio telephone, but each man still fishes alone in a flat-bottomed, 14-foot dory, baiting the hooks hung every six feet on his trawl line. From the first call, at four o'clock in the morning, until toward midnight, when the day's catch is cleaned and salted down, it is hard, gruelling work. The little dories may go as much as ten miles from the mother ship, and all of them do not always return.

Mr. Villiers lived on board the *Argus* for six months. Twice daily he ate cod steaks, tongues and hearts. The "Soup of Sorrow" made from cods' heads and halibut faces, he did not eat, for he who eats it will return to the Banks again.

This account of those "valiant Portingalls," among the world's ablest blue-water men, who were hauling chuckle-headed cod over their gunwales on the Grand Banks off Newfoundland half a century before Columbus thought he had reached the Indies, is a notable addition to the shelf of seafaring adventure.

—M. S. M.

THE SEA AROUND Us, by Rachel L. Carson; drawings by Katherine L. Howe. New York, Oxford University Press, 1951. \$3.50.

The publication of this book is an event in the annals of oceanography and should prove so to those who follow our inland seas. Beautifully written and scientifically accurate, it heads non-fiction best-seller lists. It was heralded by publication of the chapter, "The Birth of an Island," in the *Yale Review* for September 1950, and won the George Westinghouse Award (\$1000) for the best scientific writing of 1950. "The Shape of Ancient Seas" appeared in *Nature Magazine* for May, 1951, and the *New Yorker* took part of the book for a "profile" which ran in the June 2nd, 9th, and 16th issues, 1951.

The book opens with a startlingly beautiful account, based on geological information, of how the earth acquired its oceans, and how plant and animal life evolved, and takes note of changes in the convolutions of the earth's crust, the most ancient remains, dating back a billion years, being the Laurentian hills of eastern Canada and a great shield of granite over the flat country around Hudson Bay.

The narrative sweeps on, with imagination and restraint, telling of the pattern of the surface of the sea, its serene depths, its hidden lands, mountain ranges, and streams, its inhabitants, its wild rages, the constant eroding away of the earth by wind and water, the deposits in its depths and developments in their use by man, the climatic variations which correspond to the long-period cycles of the tides, and the functions of the ocean as a great stabilizer of temperatures for the globe as a whole. Comprehensive, well balanced, and rhythmical in its expression, it conveys a great deal of information in its relatively few pages.

Although most of the important information gathered by submarine detection devices in the last ten years is secret, Miss Carson incorporates what can be told with what has been known before, and describes use of sonic methods of navigation and of deep water photography whereby such unexplored regions as the Central Pacific are yielding their secrets. A wartime discovery which presently is being investigated is that of the sea's "phantom bottom."

The book closes with a brief history of early navigation and exploration, the first great voyage of marine exploration on record being that of Pytheas of Massilia about 33 B.C. The equivalent of our modern *Sailing Directions* and *Coast Pilots* were the sea charts of the early mariners, but being "keys to empire" and a "way of wealth" they were secret, hidden documents.

The format of the book is attractive and in keeping with the subject. It has a useable index and offers an inviting list of suggestions for further reading. It is illustrated by two fathograms, charts of the currents of the Atlantic and Pacific oceans, and a double-page chart of the history of the earth and its life.

As preparation for so ambitious an undertaking, Rachel Carson did graduate work in natural history at Johns Hopkins University and the Marine Biological Laboratory at Woods Hole, Massachusetts, taught at Johns Hopkins and at the University of Maryland, then served as aquatic biologist with the United States Bureau of Fisheries until her gift for writing, exquisitely, simply, and accurately about scientific subjects, was revealed. She is now Editor-in-Chief of the publications of the United States Fish and Wildlife Service. As such she has visited remote wilderness areas, has engaged in diving among the Florida coral reefs, and has observed sea life from fishing boats and oceanographic vessels. Her first book, *Under the Sea Wind*, was published in 1941. While working on *The Sea Around Us* she consulted leading oceanographers in this and other countries and made the sea her laboratory.

—A. O. H.

BETWEEN THE IRON AND THE PINE, by Lewis C. Reimann. Edwards Bros. Inc., Ann Arbor, 1951.

Mention the glamour of present-day sailing to an oldtimer and he is likely to wrinkle his nose into a contemptuous sniff. He will probably recall how, in the days before radar and other modern navigation aids, sailing a freighter was truly a dangerous and adventurous game, one in which, when the cards were down, Mother Nature herself very likely had the aces. Mention the efficiency of modern cargo-handling equipment, and he will tell of the "good old days" when iron ore was unloaded by means of buckets and wheelbarrows. The stories he tells of brawls and escapades which took place at waterfront dives in Escanaba, Michigan, at the Soo, Duluth and other ports are definitely designed to curl your hair.

In *Between the Iron and the Pine*, written in a limited edition for the centennial celebration of the discovery of iron ore in Michigan's upper peninsula, Lewis C. Reimann of Ann Arbor describes a number of characters who helped bring Glamour, with a big G, to early lake ports and mining towns.

One of his sketches concerns a big, square-chested, six-footer named Seavey, who, according to Reimann, was the "last pirate on the Great Lakes." At one time or another in his career, Seavey, who came from Portland, Maine, is said to have hunted gold in the Klondike, been a chore boy, swamper and canthook man in lumber camps, a liquor smuggler and operator of a gambling ship. He also "sponsored lake cruises offering exotic and unusual outlawed entertainment."

As a pirate, Reimann says, Seavey stole a two-masted schooner with a full cargo at Chicago and sailed her to Frankfort, Michigan. Chased by the *Tuscarora*, a government vessel, Seavey entered the harbor and drove the vessel full sail upon a slab pile in front of a sawmill, leaped ashore and disappeared. Later he appeared in Milwaukee, where he ran a fish market and acquired two saloons and a farm. He sold these and bought a tenth interest in an Alaskan mining company, but returned almost broke. Next he gained possession of a schooner, the *Wanderer*. Under the guise of freight hauling, Reimann relates, Seavey would sail into a port at night, without lights, take on board anything which was loose, and clear out again before dawn. With the law hot on his heels he again disappeared. Next heard of, he was doubling for the heroine as a deep sea diver in an early movie about the wrecking and salvaging of a Great Lakes freighter. Finally our hero is reported in the business of killing deer on Summer Island in Lake Michigan and taking them by schooner to sell in Chicago.

Seavey is described as courageous, ready to sail in any weather. His ship was said to be the last to dock at Escanaba in winter. When he entered a bar and called for drinks for everyone, everyone responded. "Those who hesitated to join the pirate felt his big hand on their collar and his boot on their pants," Reimann says. "Only once was he bested in a fight, and that when a professional fighter imported from Chicago to do the job tore him to shreds." Death caught up with Seavey in a convalescent home in Peshtigo, Wisconsin. Whether he was convalescing from this beating is not made clear.

His story of Seavey is only one about many such characters which Reimann relates.

—B. B. L. in *The Cleveland Plain Dealer*, November 11, 1951.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION
REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS
AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946

(Title 39, United States Code, Section 233)

Of INLAND SEAS published Quarterly (Spring, Summer, Autumn and Winter) at
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1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Great Lakes Historical Society, c/o The Cleveland Public Library, 325 Superior Ave., Cleveland 14, Ohio; Editor and Managing editor, Donna L. Root, 325 Superior Ave., Cleveland 14, Ohio; Business manager, None.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.) Great Lakes Historical Society, c/o The Cleveland Public Library, 325 Superior Ave., Cleveland 14, Ohio.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.)

DONNA L. ROOT,
Editor and Managing Editor.

Sworn to and subscribed before me this 27th day of September, 1951.

[SEAL]

LEO P. JOHNSON,
(Commission expires Nov. 9, 1954)

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Compiled by Gertrude M. Robertson

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<i>Armstrong, W. H.</i>	<i>Foss, Robert</i>	<i>Panton, W. R.</i>
<i>Ashley, J. S.</i>	<i>Gaige, P. P.</i>	<i>Patchin, A. D.</i>
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<i>City, Forest</i>	<i>Hudson, Hendrick</i>	<i>Shaughnessy, Sir Thomas</i>
<i>City, Fountain</i>	<i>Hurlbut, Chauncey</i>	<i>Shupe, Wm.</i>
<i>City, Garden</i>	<i>Hurd, Joseph L.</i>	<i>Skinner, J. B.</i>
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<i>Clay, Henry</i>	<i>Jewett, H. J.</i>	<i>Star, Morning</i>
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Ward, Milton D.
Ward, Sam
Warren, Homer

Wells, J. P.
West, Charles C.
West, North
White, Charles M.

Whitman, W. L.
Windsor, City of
Wright, L.

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